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ACUTE EPIDEMIC ENCEPHALITIS *An Investigation by The Association for Research in Nervous and Mental Diseases*

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THE ELICITATION AND EVALUATION OF PHYSICAL SIGNS

IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS *

HENRY F. STOLL, M.D.

HARTFORD, CONN.

A skilful technic and sound judgment in appraising symptoms are the essentials of good surgery. The importance placed on the former is evinced by the numerous articles that appear in the medical journals each year, describing in great detail how various operations are performed. On the other hand, discussions of technic in conducting physical examinations are very uncommon—yet a skilled neurologist may detect a nerve palsy or elicit a reflex not previously noted because of his superior technic in conducting the examination.

There can be no doubt that the failure to remove the clothing and lack of familiarity with the technic necessary to elicit the physical signs that accompany early tuberculous disease result in many incipient cases being unrecognized. Mistakes in diagnosis are about equally divided between the failure to detect the physical signs and the erroneous interpretation placed on the signs elicited. The former results in missing the early cases; the latter frequently causes tuberculosis to be incorrectly diagnosed.

There is not time, nor is it necessary, to describe in minute detail all the steps of the complete physical examination. Only certain points that seem of special importance will be considered. It is desirable, I believe, to ascertain the position of the apex beat of the heart before proceeding with the examination of the lungs, as the examination of the heart is apt to be rather cursory, once pathologic changes are discovered elsewhere. Not infrequently, patients are seen in whom tuberculosis has been diagnosed because of a cough associated with dulness, distant bronchial breathing and râles over the lower part of the chest, in whom the true condition of pleural effusion might have been recognized had it been noted that the apex beat was displaced several inches from its normal position.

INSPECTION

In examining for tuberculosis, inspection, if properly carried out, often gives information of considerable value. It is essential, however, that the patient directly face the light so that both sides of the chest are equally illuminated. It is desirable to have the subject sit on a revolving stool, erect but with the shoulders relaxed.

Unilateral apical retraction suggests an old process that has undergone fibrosis. It may or may not be active. The motion of the chest with inspiration should be closely observed, as very commonly the diseased side or the side presenting the more active lesion, if both are involved, will lag as inspiration begins. The delay in the initiation of the inspiratory act can be graphically seen by means of the fluoroscope, which enables one to see not only a momentary delay in the descent of the diaphragm on the diseased side as inspiration begins, but also a similar delay at the onset of expiration. This attempt of nature to diminish the amplitude of the respiratory act as much as possible is a lesson all of us may well take to heart. Clinically, the movement with inspiration can be best seen when one is standing behind the patient, who is seated on a stool facing the light and looking downward over the front of the chest.

As an aid in training the eyes to observe the two sides at the same time, I have found the ingenious method suggested by Dr. Roy D. Adams of Washington, D. C., helpful. With a skin pencil, dots are placed in exactly corresponding areas directly below each clavicle about opposite the middle third, in such a position that they are not evident when one is standing behind the patient after he has breathed out (Fig. 1 *A*). If the spots are of the same size and are placed with care, one observes in the normal subject that, as inspiration proceeds, the dots appear synchronously. With unilateral tuberculosis, however, the dot on the side of the lesion appears later (Fig. 1 *B* and *C*).

The inspiratory lag, however, is, I think, best elicited by a method demonstrated to me a few years ago by Dr. Lawrason Brown:

> The patient stands erect with his back against the wall, but with the shoulders relaxed. The examiner, standing directly in front, places his right hand below the clavicle over the left upper lobe, and the left hand in a corresponding position on the right side, and exerts slight pressure as the patient inspires. In the normal person the inspiratory lift of the two sides is synchronous and equal. A well-marked delay of either side in getting under way is suggestive of a pathologic process on that side.[1]

PERCUSSION

In the detection of early tuberculous lesions, percussion is much less trustworthy than auscultation. The physician who is not fortunate in having a quiet

* Read before the Hartford Medical Society, Feb. 19, 1923.

* The illustrations, with two exceptions, are from the motion picture "The Diagnosis of Tuberculosis," prepared for the Surgeon General during the World War, and are reproduced by his permission.

1. Dr. R. S. Starr of Hartford, Conn., told me the following, as illustrating the value of inspection: As he was a member of one of the heart boards in the army, cases were frequently referred to him because of tachycardia. In many of these cases unilateral inspiratory lagging was evident. Subsequent reexamination of the lungs almost invariably showed tuberculosis on the side of the lag. In a few instances in which the physical examination was negative, roentgen-ray examination showed the lesion to be present.

examining room would do well to spend the time commonly devoted to percussion in studying the symptoms and in searching for râles, as the heavy blow necessitated by distracting noises is quite valueless. Not only must the blow be a light one, but the pleximeter finger must be closely applied to the chest wall and the pressure at all times be constant. Moreover, unless one compares the note in exactly corresponding areas on the two sides, unwarranted deductions may be made.

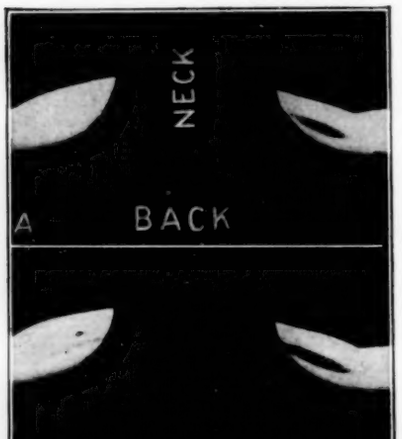

Fig. 1. — View of inspiration as one stands behind patient and looks down on front of chest: *A*, retraction and flattening of right chest apparent; photograph at end of expiration; dots not visible; *B*, inspiration begins, and as the right side lags, the dot appears first on the left; *C*, toward the latter part of inspiration the dot appears on the right side.

The descent of the lower lobes with quiet and deep breathing should always be ascertained. Failure to do this is the most common reason for missing small pleural effusions at the base. Percussion of the supraclavicular space is somewhat simplified, and comparison of corresponding areas on the two sides is made easier if the space is divided into two or three sections, depending on the size, by lines going anteroposteriorly. If then one stands behind the patient, who is seated, it is very easy to compare the note in the corresponding segments (Fig. 2). This is much easier of performance than the percussion of the apexes after the manner of Kroenig.

AUSCULTATION

Two children at play, one tapping the end of a long beam while the other listened with the ear applied to the farther end, suggested the stethoscope to Laënnec and there dawned a new era in medicine. The stethoscope furnishes us with the most trustworthy signs of pulmonary disease. In the detection of early tuberculous lesions, the study of the breath sounds alone is of little value. Slight diminution of the respiratory murmur sometimes appears early; but, unsupported by other evidence, it may be disregarded.

The overzealous and inexperienced examiner not uncommonly interprets the slight prolongation of the expiration at the right apex as evidence of tuberculous disease, overlooking the fact that the trachea inclines toward the right and is intimately in contact with the inner aspect of the right apex. Then, too, the right apex contains slightly less pulmonary tissue; and this fact, together with the position of the blood vessels at the right apex, causes the percussion note to be slightly less resonant.

The most significant auscultatory findings, however, are râles. It is surprising and most unfortunate that, though râles were described a hundred years ago and have been much discussed ever since, an agreement in terminology has never been attained. Fortunately, it is the interpretation placed on them that counts, though it would greatly facilitate in the exchange of ideas if some common language could be spoken. Crepitant and subcrepitant, dry and moist, large, medium, small and indeterminate are the terms used by various clinicians to describe what they hear.

TECHNIC OF RÂLE ELICITATION

In order to understand why in certain cases a special technic is necessary to elicit râles, a brief consideration of their probable method of production is necessary. They are produced in the air vesicles and smaller bronchioles, presumably in the following manner: When there is a great deal of increase in the bronchial secretion, the mere passage of air in and out of the bronchioles and air vesicles with ordinary respiration is sufficient to set in motion the mucus on their walls, which results in the vibrations we interpret as râles. In the early case of tuberculosis there is not enough secretion to be set in motion by quiet breathing. The vesicles are more or less expanded at all times because of the reserve air in the lung (Fig. 3 *A*).

It is not difficult to see why the common admonition, "Now take a deep breath," so often fails to elicit râles (Fig. 3 *B*). The normal lung tissue expands so readily and so greatly exceeds in amount the early tuberculous lesion that the inspired air, following the line of least resistance, finds it much easier to expand the normal vesicles than those that are more or less collapsed and occluded. Furthermore, while deep breathing increases the amplitude of inspiration, it does not materially affect the amount of reserve air in the lung.

If the reserve air is expelled, however, by a forced expiration terminating in a cough, the air vesicles will be compressed and their mucus-coated surfaces approximated (Fig. 3 *C*). With the succeeding inspiration, these walls are suddenly torn apart, and râles are produced (Fig. 3 *D*).

It is therefore important not only that the patient expire but that he conclude the expiratory act with a short cough, or, better still, with two short coughs. Now there are two reasons for this cough: Not only does it aid in getting rid of the reserve air and thus inducing a maximum air vesicle collapse, but, owing to the fact that with the act of coughing, the intrabronchial pressure is suddenly increased to a considerable degree, certain air vesicles may be expanded that would otherwise remain collapsed and "silent" (Fig. 3 *D*). So it is that râles are sometimes heard only during the act of coughing, and it is for this reason that two short coughs are preferable to one.

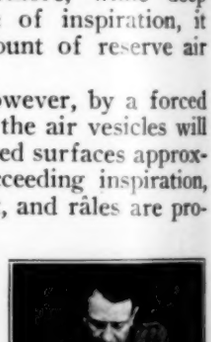

Fig. 2.—Division of supraclavicular fossa into equal spaces by anteroposterior lines; compare note in corresponding areas; same position used to detect lagging.

The importance of expiration and cough has been shown by Bray. He found that while only 23 per cent. of incipient cases exhibit râles on deep breathing alone, it was possible to demonstrate them in 76.5 per cent. if expiration and cough were employed. Even in advanced cases, only 27 per cent. show râles without cough. It

is unfortunate that the optimum time for cough is following expiration, because the natural time to cough is at the end of inspiration. It is, therefore, important to explain to the patient at the beginning of the examination exactly what is desired. Most patients will grasp what is wanted if told to "breathe out and cough all with one breath," but much time can be saved by illustrating just how it should be done. When all

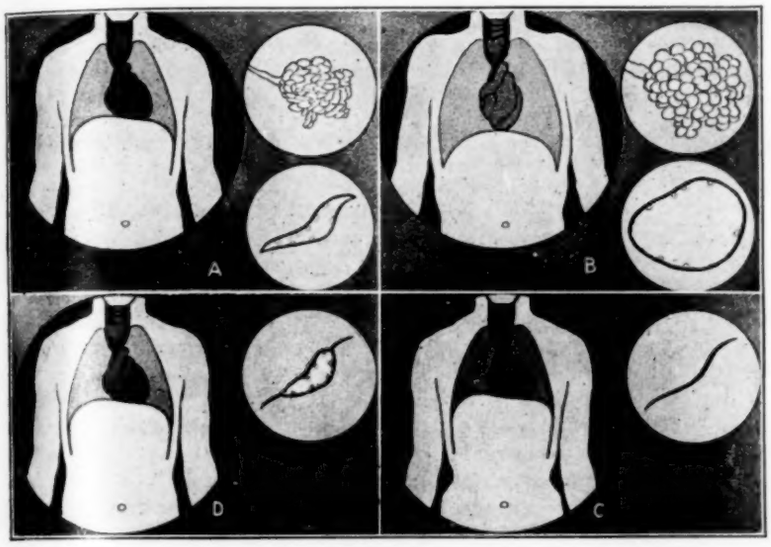

Fig. 3.—Why the common admonition, "Now take a deep breath," fails to elicit râles: *A*, air vesicle just prior to inspiration, at the end of a natural expiration; the cross-section of air vesicle shows the secretion on the walls of the air vesicle which are not in contact; *B*, with forced inspiration the air vesicle fills up but does not set in motion the small amount of viscid secretion present, and the walls are still separated; *C*, forced expiration followed by a cough results in the approximation of the walls of most of the air vesicles; *D*, occasionally the act of coughing suddenly and momentarily opens up collapsed and occluded vesicles, and râles are heard; more often the sudden inspiration following the cough separates the moistened surfaces, and râles are produced.

methods of instruction fail, if the patient is instructed to cough two or three times consecutively, the lungs are pretty thoroughly emptied with the last cough.

It does not seem that enough attention has been given to the part of inspiration that râles occupy. Textbooks are rather apt to be vague or to ignore it entirely. In the advanced case, if râles are heard without expiration and cough, they occupy chiefly the middle and latter part of inspiration. Now, if this patient breathes out and coughs, the râles are heard either with the act of coughing or the moment inspiration starts, and they continue throughout. As the activity lessens, the râles become fewer in the latter part of inspiration, though present at the beginning, and finally they may be heard only with cough. Accordingly, not only is it important to have the patient expire and cough, but one must have the bell of the stethoscope in place before the cough, and listen during cough and especially throughout the first half of the inspiration following. The movement of the stethoscope should be so timed that it takes place during expiration. In this manner the whole chest should be ausculted, especial care being given to the area adjacent to the spine of the scapula, from the second to the fourth thoracic spines, the supraclavicular and infraclavicular regions, and laterally the region under the lower edge of the pectoralis major muscle. More will be said concerning the last region later on.

The râles of an early case of tuberculosis are slightly moist in sound, relatively "small," and for the most part of the same size. In the more chronic case the size is not constant, large and small râles being intermingled ("indeterminate").

SOUNDS SIMULATING RÂLES

Various sounds of extrapulmonary origin, such as muscle snaps, and sternoclavicular, scapular and sternal sounds, are sometimes mistaken for râles. With the possible exception of sternal sounds, they do not, as a rule, occur as early in inspiration following expiration and cough as the râles due to parenchymal change. Atelectatic râles are heard at the end of forced inspiration and disappear on deep breathing.

A nervous patient may swallow after each cough, and a clicking sound is produced that sometimes closely simulates an air vesicle râle. In the lateral and anterolateral aspects of the chest, especially in long, slender persons, showers of fine, crepitant râles are often heard in the latter part of inspiration below the level of the transverse mammary line. Several deep inspirations superimposed on one another will cause them to disappear, while several forced expirations will cause their reappearance. They are always heard on both sides of the chest, are relatively drier than the râles of pulmonary disease, and are always heard toward the middle and latter part of inspiration. If a stethoscope with two bells is used, they appear first in the upper bell (Fig. 4). The râles originating in the air vesicles and smaller bronchioles, however, appear in the two bells synchronously.

Whether the sounds are due to the expansion of compressed air in the lower part of the lung or to the stripping off of the diaphragmatic pleura from the parietal pleura, as Bushnell believes, the practical point is that they are not indicative of a pathologic condition. Many an unwarranted diagnosis of tuberculous pleurisy

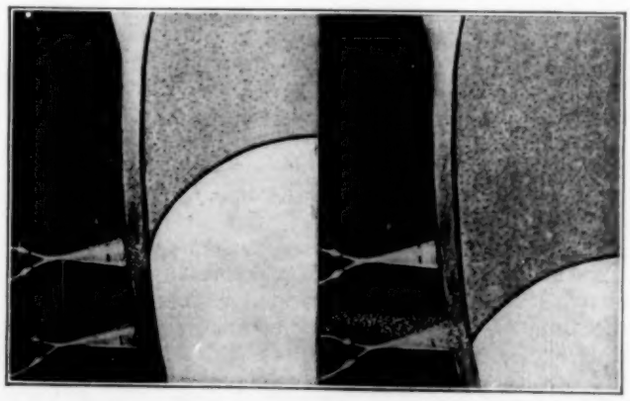

Fig. 4.—Marginal sounds are heard as the diaphragm descends—first in the upper bell, then in the lower; on the left, about the middle of inspiration; on the right, at the end of inspiration.

has been made in persons presenting vague symptoms on the strength of these marginal râles. The crepitant râles of early lobar pneumonia also appear during the middle of inspiration, and attain their maximum at the end. They would scarcely be confused with marginal râles. Expiration and cough do not materially alter their appearance in inspiration; but when resolution is under way and the secretion is less viscid, the

râles begin early in inspiration following expiratory cough.

Some years ago, I sent a man who I suspected might have tuberculosis to the hospital for observation and roentgen-ray examination. I had examined him once in my office and found no definite signs, yet the roentgen ray showed a tuberculous process in the outer part of the upper lobe below the apex, though the apex itself was clear. I then reexamined him, and when the stethoscope was placed well up under the lower edge of the pectoralis major muscle (Fig. 5) in about the anterior axillary line, many râles could be heard following cough. Many times since then I have discovered a lesion in this area. Sometimes it is impossible to demonstrate it clinically even when the roentgen ray reveals well marked pathologic changes. There is apt to be an inspiratory lag on that side, however, even when râles are not evident. A study of Figure 6 shows how inaccessible a lesion in this region is. Posteriorly, the interposition of the scapula renders the examination unsatisfactory; approach from above is prevented by the shoulder joint, while in front a well developed pectoralis major muscle obscures the signs. The most satisfactory access is secured if the arm is held in a position that relaxes the pectoralis major muscle, thus enabling the bell of the stethoscope to be pushed up under its lower border.

Fig. 5.—It is high up under the pectoralis major muscle that one often finds a lesion.

THE IMPORTANCE OF IMMEDIATELY RECORDING PHYSICAL SIGNS

That the significance of the physical signs may be determined, they must be studied together—they must be "added up," as it were. As few are skilled in mental arithmetic, it is desirable to record signs as soon as discovered rather than at the conclusion of the examination, as some important bit of evidence may be forgotten. This can be done quickly if symbols are used and a diagram of the chest is employed. After using a variety of rubber stamps of different sizes and a cut that I had incorporated in my history chart, I have found that a simple diagram drawn at the time of each examination has much to commend it (Fig. 7).

Now let us assume that our patient has been correctly inspected, properly percussed and skilfully auscultated, and that certain incriminating signs have been legally recorded. What are we to tell him? What justification have we for considering the process tuberculous—and if tuberculous, is it clinical tuberculosis that needs treatment or anatomic tuberculosis that does not require treatment? Failure to make this differentiation has resulted in the unnecessary breaking up of many homes, and during the war robbed Uncle Sam of many a soldier.

It is generally recognized that physical signs limited to the upper part of the lung are as a rule indicative of tuberculosis, and that those confined to the base, with no evidence of old trouble at the apex, are in most instances nontuberculous. Yet exceptions occur, and one must be ever on the alert to recognize them.

A middle aged woman, who complained of fatigue and cough, on several examinations exhibited a few râles above the right clavicle. The sputum and the roentgen-ray examination were negative, however, and her cough was cured by the removal of polypi from the right naris.

A young woman who for the last two years, since her recovery from a very early tuberculous lesion, had been in excellent health, developed a "cold" and cough a few months ago. Physical signs were very indefinite, and confined wholly to the extreme right base. The roentgen ray revealed a new tuberculous area just above the diaphragm, and bacilli were found in the sputum.

SYMPTOMS, NOT RÂLES, DETERMINE ACTIVITY

We may determine with reasonable accuracy from physical signs that tuberculous infection has occurred; but no physical sign—not even râles—can be accepted as an indication of activity. In fact, râles may not make their appearance till months after improvement has begun. A careful study of the symptoms is very necessary in every case.

As is well known, the so-called constitutional symptoms—anorexia, rapid pulse, loss of weight, easily induced fatigue, digestive disturbances, sweats and fever—are an evidence of toxemia, the cause of which may be the tubercle bacillus; but an almost identical symptomatology may accompany other conditions, as, for example, neurasthenia, syphilis and hyperthyroidism. If, in addition to the constitutional symptoms mentioned above, a persistent cough is complained of, especially if followed by vomiting, the suspicion of tuberculosis is strengthened; but, it should be noted, it is only a suspicion. Unless supported by a history of hemoptysis or pleurisy with effusion, or accompanied by persistent râles in the upper third of the lung, a parenchymatous roentgen-ray lesion or bacilli in the sputum, a definite diagnosis of tuberculosis is unwarranted.

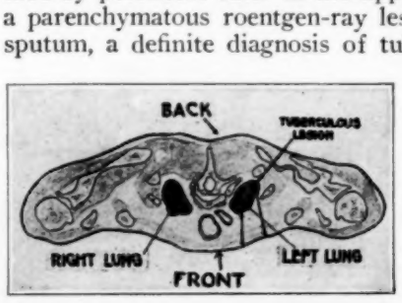

Fig. 6.—Cross-section, from above, at about the level of the third thoracic vertebra, showing inaccessibility of a lesion in this region.

Only recently has it been appreciated that cough, the most common of all symptoms, may be due to extrapulmonary conditions:

A woman, aged 34, consulted me a year ago because of a cough of four years' duration. It varied in severity, and of late had been much worse, interfering with sleep. Tuberculosis had recently been diagnosed, and she had been urged to take the cure. I was unable to substantiate the diagnosis, and the roentgenogram of the lungs was negative. A roentgenogram of the head, however, showed both antrums and the ethmoid cells filled with pus, the evacuation of which brought prompt gratifying relief of the cough.

In some instances, the infection of the sinuses seems to "spill over," as it were, from time to time, causing bronchitis of the larger tubes. In such cases it sometimes happens that, though the cough may be very loose and accompanied by profuse expectoration, thorough examination of the lung may demonstrate very few râles. This combination, loose productive cough with no physical signs, was the picture presented by

three cases of syphilitic bronchitis observed during the last few years.

During the early days of the late war, France lost two divisions, about 86,000 fighting men, by classing them as tuberculous. Of the soldiers returned to Canada suspected of being tuberculous, 33 per cent. were found to be nontuberculous. In this country, nearly one quarter (23 per cent.) of 18,713 soldiers admitted to tuberculosis hospitals were found to be nontuberculous [Bushnell].

During the year that I was chief of the tuberculosis division of the Walter Reed General Hospital in Washington, 426 cases were referred as tuberculosis suspects. As the result of combined clinical and roentgenologic examination 47.6 per cent. were found to be nontuberculous, and 30 per cent. had active lesions. The remainder had old inactive processes. In eighty-five, the lesion was disregarded and they were returned to full duty.

Hypertrophied tonsils are sometimes responsible for a persistent cough, but the throat specialist who operates without first excluding a pulmonary lesion is assuming a grave responsibility. In one such case in which the underlying tuberculosis was not recognized, a rapidly progressive faucial tuberculosis developed.

Several years ago, a young man came to me for examination who presented extensive disease of the larynx. He had been sent by his family physician to a throat specialist, and a diagnosis of tuberculosis had been made. Immediate departure for the Southwest had been advised, and a bad prognosis had been given. I could find no sign of pulmonary disease, a very rare thing with extensive laryngeal involvement. A chancre was admitted, and the Wassermann reaction was positive.

Hemoptysis, not associated with mitral stenosis, should always be considered due to tuberculosis, even though occurring in a robust person who is apparently in the best of health. At the Adirondack Cottage Sanatorium, a definite roentgen-ray lesion was found in 90 per cent. But let no one deduce that the remaining 10 per cent. were not tuberculosis because of the negative roentgen-ray examination. Concerning such cases, Baetjer says: "We find lungs which are absolutely clear; yet six or eight months later we begin to see slight changes which at that time we can say are tuberculous, when during the period of hemorrhage the lungs were absolutely clear." Insidious pleurisy with effusion should be considered tuberculous and so treated:

Recently I saw, in consultation, a boy, aged 16, because of a recent hemorrhage. He had had a serous pleuritis eight years before, but it was made light of by his physician, and no treatment for tuberculosis was instituted. The greater part of one lung is now involved.

A young married woman was referred to me who, when a child, had been very ill with pleurisy, but recovered and for a number of years appeared to be in good health. When about 22 and while seemingly very well, one morning she suddenly had a hemoptysis of about 1 ounce. She was at once examined and assured that her lungs were "as strong as a coal heaver's." There was never any recurrence of the bleeding, and except for rather frequent colds she has enjoyed good health till about two months before. When I saw her the right upper lobe was quite extensively involved, and invasion of the lower lobe had already begun.

In view of the fact that municipal and state laboratories throughout the country make sputum examinations, it is surprising that recourse to this valuable diagnostic procedure is not more frequently made. Only 267 tests were made in our city laboratory during 1922, and from personal observation during the time I was assistant bacteriologist it was very uncommon to have a second specimen sent if the first was negative. A physician once told me that, as the patient's family seemed very well pleased with the single negative report, he thought he would leave good enough alone. We should accustom ourselves to think that sputum examinations are performed in several stages, and have specimens sent in on several consecutive days or until a positive finding is reported. And let it be said that a careful examination cannot be performed quickly. Extensive physical signs and repeatedly negative sputum almost certainly exclude tuberculosis.

Individuals who can ill afford the expense are too often referred to the roentgenologist when an examination of the sputum would settle the diagnosis.

The roentgen ray is of great help, not only in revealing lesions that escape detection by physical examination but also in accurately determining the extent of the lesion and, to a certain extent, the activity. The roentgenologist who combines a skilful technic with

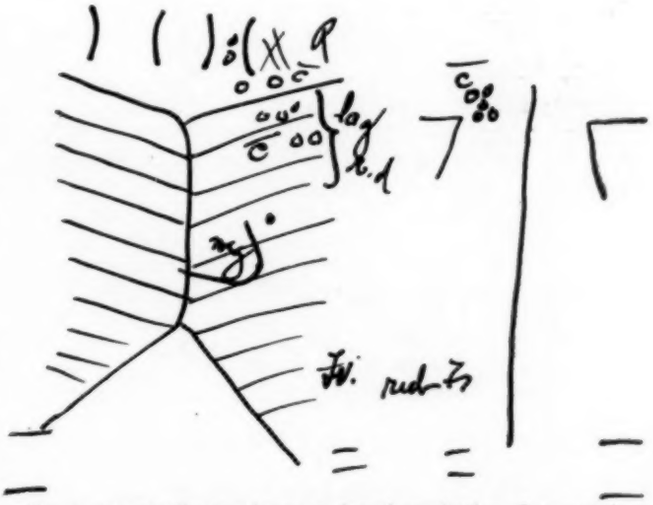

Fig. 7.—Simple diagram drawn at time of examination. Interpretation: Retraction above left clavicle. Left upper chest lags with inspiration. Kroenig's isthmus on left narrowed, owing to inward displacement of outer border. Expansion at left base, both anterior and posterior, is diminished. On the right there is good expansion. The breath sounds are somewhat distant below left clavicle. Râles are heard only following expiration and cough, and are present above the left clavicle and below in the outer part of the first and second spaces; also posteriorly in the inner part of the superspinous fossa just above and to the level of the spine of the scapula. A friction rub is heard over the left lower lobe. The heart is normal in size, and no abnormality is detected. It took one and one-half minutes to make this diagram and record the findings. When one is familiar with the symbols, the diagram can be "read" in a few seconds—almost instantly. Rapidly writing these findings in long hand took four and one-half minutes. Reading them a month later would require at least as long.

sound judgment based on a large experience is of great assistance to the clinician. He will, however, be led into error from time to time if he considers only the roentgenologic aspect of the case.

We have considered the methods of eliciting physical signs and have discussed their significance; but whom shall we examine? There can be no difference of opinion as to the necessity of carefully examining the lungs of all young adults irrespective of their complaint. But is it essential to make a similar examination of persons who are well past middle life?

A stonemason, aged 65, consulted me because of sores in his mouth. Although his radial arteries were very markedly beaded, he did not look his age. The right half of the lower lip was somewhat swollen and red. On each side of his tongue and on the inner aspect of the lower lip were ulcers

having the same characteristic. They were about 1 cm. long, not indurated, and covered with only a small amount of exudate. They appeared to be rather shallow; but, when put on tension, they presented numerous rather deep sulci suggesting a cauliflower. The adjacent lymphatics were not enlarged. Syphilis at first seemed the most probable cause. During the complete physical examination, the left upper lobe was found to be extensively infiltrated. The sputum was loaded with tubercle bacilli, and Dr. J. C. Rowley, who examined a specimen removed from the ulcer, reported it to be tuberculous. The Wassermann reaction was negative.

A man, aged 62, was referred to me because of a persistent sore on the side of his tongue. He had a single ulcer that resembled in all particulars the ulcers in the case previously described. Aside from the ulcer he felt perfectly well. He was working daily, and had lost neither in weight nor in strength, though he had a cough. Both upper lobes were extensively involved, and the sputum contained large numbers of tubercle bacilli. A specimen from the ulcer was examined by Dr. Rowley, who reported "tuberculoma."

These two very unusual cases demonstrate that tuberculosis is not confined to middle life. In fact, the death rate, when based on the number of those living for various age groups, shows fully as high a rate for those past 60 as during earlier periods.

CONCLUSION

There is no divining rod for detecting tuberculosis. Valuable as the diagnostic aids are, it is the clinician who must assemble and carefully weigh the various and at times conflicting bits of evidence. Irrespective of the patient's age or the presenting symptom, the possibility of tuberculosis should always be considered. The diagnosis does not consist merely in the detection of breath changes, the elicitation of râles, or the discovery of suspicious roentgen-ray findings. It is only by the consideration of all available data that diagnostic accuracy can be obtained.

179 Allyn Street.

DIAPHRAGMATIC PLEURISY *

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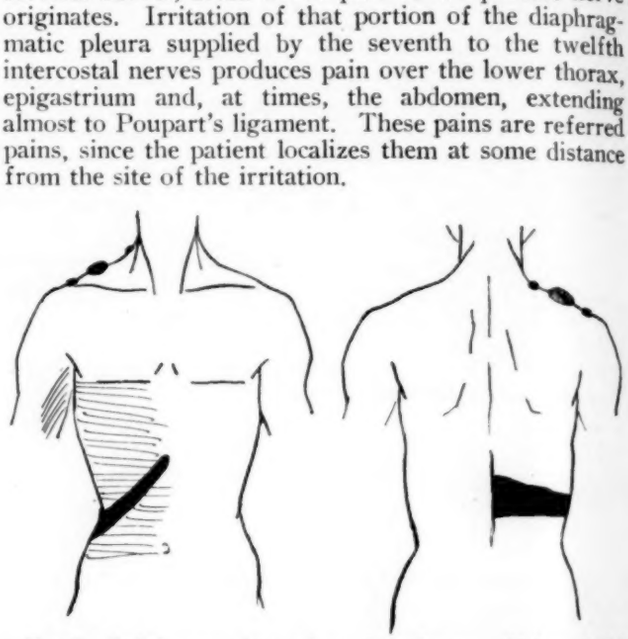
One of the most trying and difficult symptoms to interpret is pain. When the pain is not felt by the patient at the site of its origin but is referred to other and perhaps distant parts of the body, the difficulty obviously increases. Such pain is referred pain and is found in diaphragmatic pleurisy.

Capps,[1] by means of a series of ingenious experiments on man, demonstrated, in 1911, that the visceral pleura is not endowed with pain sense and that the parietal pleura is richly supplied with sensory fibers from the intercostal nerves; that irritation of the parietal pleura produces pain that is accurately localized by the individual over the spot irritated. He demonstrated, at the same time, that the diaphragmatic pleura receives its nerve supply from two sources, the phrenic nerve and the lower six intercostal nerves. The intercostal nerves supply the peripheral rim of the diaphragm anteriorly and laterally, as well as the posterior third of the diaphragm. The phrenic nerve supplies the central segment of the diaphragm; and when this portion of the pleura is irritated, the pain is referred to the skin and tissues supplied by the third and fourth cervical nerves, from which part of the phrenic nerve originates. Irritation of that portion of the diaphragmatic pleura supplied by the seventh to the twelfth intercostal nerves produces pain over the lower thorax, epigastrium and, at times, the abdomen, extending almost to Poupart's ligament. These pains are referred pains, since the patient localizes them at some distance from the site of the irritation.



Heavily shaded areas show points of tenderness. Lighter shaded area, possible area of hyperesthesia.

Recently, Capps and Coleman[2] demonstrated on patients that irritation of the diaphragmatic peritoneum produces referred pains almost identical with those produced by irritation of the diaphragmatic pleura. They state that stimulation of the diaphragmatic peritoneum produces pain which is never felt in the diaphragm itself but is localized in the neck, especially in the trapezius muscle and over the lower chest and portions of the abdomen. Their explanation of the referred pain from the diaphragm is that the impulses are carried by afferent fibers of the phrenic nerve to the cervical cord, and referred to the neck by sensory cutaneous nerves of the fourth cervical segment.

Mackenzie[3] believes many pains, especially those originating in irritation or disease of a viscus, are referred pains. He feels that irritation of a viscus produces a group of stimuli traveling along a reflex arc, which, in turn, produce a sensation of pain in certain referred areas, often more or less distant from their point of origin.

Clinically, the onset of a pneumonia with severe pain in the abdomen, either upper or lower portions, has been noted innumerable times and reported,[4] especially in children. We have found that with the onset of pneumonia in adults pain will frequently be present in the abdomen, a shoulder or one side of the neck, as well as in the chest. Careful examination of the patient may not reveal any abnormal physical findings in the chest even at the site of pain except a possible hyperesthesia of the skin or some tenderness of the subcutaneous tissues or of the muscles beneath the skin, but tenderness may be elicited in various remote areas, as in the neck, the back and abdomen. In the neck

* From the medical clinic of the Cincinnati General Hospital and the department of internal medicine of the University of Cincinnati.

1. Capps, J. A.: An Experimental Study of the Pain Sense in the Pleural Membranes, Arch. Int. Med. **8**: 717 (Dec.) 1911.

2. Capps, J. A., and Coleman, G. H.: Localization of Pain Sense in Parietal and Diaphragmatic Peritoneum, Arch. Int. Med. **30**: 778 (Dec.) 1922.

3. MacKenzie, Sir James: Symptoms and Their Interpretation, London, Shaw & Sons, 1920.

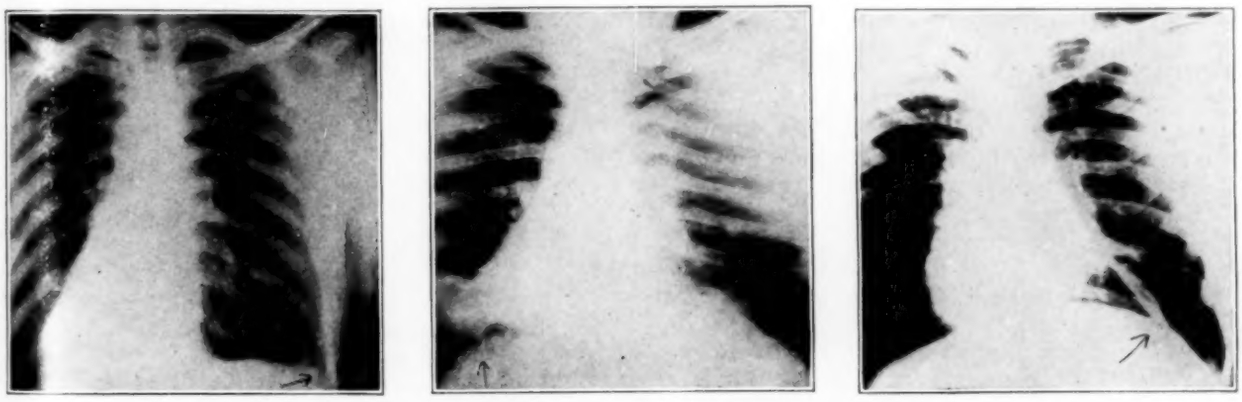
4. Griffith, J. P. C.: Pneumonia and Pleurisy in Early Life Simulating Appendicitis, J. A. M. A. **41**: 531 (Aug. 29) 1903. Herrick, J. B.: Abdominal Pain and Pleurisy in Pneumonia, J. A. M. A. **41**: 535 (Aug. 29) 1903.

and shoulder, the tenderness is usually elicited by pinching the skin overlying the ridge of the muscle, as the trapezius; more often, by pinching the muscle edge itself. The middle third of the trapezius edge is the most frequent segment involved, though the upper and lower segments are tender almost as often as the middle third. At times, the entire muscle edge or a great part of it is tender to pressure. This symptom was the commonest evidence of referred pain, being present eighty-five times in 126 patients, or in almost 70 per cent. The tender areas were found on the affected side, though at times the trapezius edge of the opposite side was involved without any other evidence of involvement of that side of the diaphragmatic pleura. Tenderness may be elicited in other parts of the neck and shoulder, though infrequently, as in the supraclavicular and infraclavicular fossae, at the tip of the shoulder, over the scapula and in the interscapular region.

The area of tenderness second in point of frequency (68 per cent.) was in the abdomen. The most frequent location was a rim several centimeters wide below the costal margin on the affected side. The tenderness may commence at the xiphoid region and extend into the flank. The pain elicited was rather sharp, and as a rule there was only moderate muscle spasm and rigidity. The tenderness was usually more severe in the flank than below the ribs anteriorly. The entire half of the abdomen on the affected side may be involved, as determined by the extent of the diaphragmatic pleural irritation. In five patients, there was marked pain and tenderness over the right lower quadrant, associated with muscle spasm and rigidity. The entire side of the abdomen in two patients was rigid throughout and exquisitely tender to pressure. There may also be tenderness localized in the epigastrium.

In 60 per cent. of the patients studied, tenderness was elicited beneath the twelfth rib posteriorly. This area of tenderness is in reality a continuation of the tender zone beneath the ribs anteriorly and in the flank. There is actually a rim of tenderness along the rib margins from spine to xiphoid. This area beneath the ribs in the back is usually broader than the involved region beneath the ribs anteriorly. The pain elicited here may also be severe, but is usually not as sharp as in the flanks and is of about the same intensity as the pain in front. In the back, tenderness has at times been elicited along the spinous processes or to each side of the spine of the lower six dorsal vertebrae, and less frequently below the angles of the scapulae. Additional regions in which tenderness was elicited were present, though not constantly. Some of these regions were the supraclavicular and infraclavicular fossae, shoulders, axillae, anterior surface of the chest, spinous processes of the vertebrae, the pectoralis major and the lower scapular region.

A very dramatic symptom, when present, is hyperesthesia and hyperalgesia of the skin. This symptom was present in almost 20 per cent. of the patients. Its extent varied from a small area which the patient could localize with his finger to involvement of the skin from above the nipple to below the umbilicus and extending from the midline anteriorly to the vertebral column. Usually, the hyperesthesia is not extensive, and it has been found especially localized in the lower chest and axilla and the upper abdomen. In three patients, the upper arm was involved; and in one of these three, the pain extended to the finger tips. Several other areas were involved at times. These regions were the interscapular spaces, flanks, lower abdomen, lower half of the breast and various scattered areas of the back, usually in the neighborhood of the angle of the scapula and once to the thigh.



Adhesions distorting the diaphragm in chronic diaphragmatic pleurisy.

Any portion of the skin supplied by the lower six intercostal nerves may be involved as well, though rarely, as the skin of the arms, shoulders and neck. In several patients, this hyperesthesia was so marked that the pressure of the gown was almost unbearable. At times, pain is elicited on percussion and again it may only be detected by pinching the skin.

In the majority of the patients, the onset was acute, as was to be expected. Just as we have acute costal pleurisy occurring alone or associated with pneumonia, so we have diaphragmatic pleurisy. Kelly and Weiss [5] reported, in 1918, a small series of patients with diaphragmatic pleurisy, and in this series of patients one of the first observed was a man in whom most of the symptoms were referred to the abdomen. Later, he slowly developed consolidation in the affected side. The increase of the infiltration could be watched from day to day, until the entire lower lobe was involved. Frequently, with the onset of pneumonia with pleurisy, the patient does not come under the physician's care until there are definite signs of consolidation. This is especially true of patients seen in hospital practice. In the last few years, diaphragmatic pleurisy has been detected many times in association with pneumonia when there was no definite evidence of costal pleurisy.

5. Kelly, T. H., and Weiss, H. B.: Am. J. M. Sc. **156**: 808 (Dec.) 1918.

With the acute onset, the areas of tenderness and hyperesthesia, as described, were almost always present. In the patients with chronic involvement, all of the characteristic signs were not present. Usually one, rarely two, of the distinctive areas of tenderness were absent. In this type of patient, the history of respiratory infections is a great aid in the diagnosis.

In a few of the chronic cases, there have been acute exacerbations giving all of the characteristic physical findings. In the series of 126 patients, thirty were classed as chronic and four of these presented an acute exacerbation. In only 18 per cent. of the patients studied were friction rubs heard. These sounds were due to the involvement of the costal pleura. It is evident that the pleural involvement can be so extensive as to affect both the costal and the diaphragmatic portions. The friction rubs were usually localized over small areas, most frequently over the axillae, rarely extending into the front or back of the chest.

The onset of pneumonia was heralded in 20 per cent. by symptoms of diaphragmatic pleural disease. As the consolidation increased, the characteristic findings of pleurisy were dissipated, as usually occurs when there is only a costal involvement. Nausea occurred in only 5 per cent. of the patients; vomiting was present in 7 per cent. Only three patients of the 126 had hiccup. This is much less than one would expect with diaphragmatic disease. One patient with involvement of the right side had contraction of the entire right rectus muscle. The entire muscle would move upward about one half inch with each contraction, while the left rectus muscle was almost stationary.

The diagnosis in the majority of patients with diaphragmatic pleurisy is not difficult. In the acutely ill patients, there is usually a history of respiratory symptoms, as sudden onset, pain in the side, cough; perhaps a chill. Soon, there appears the characteristic areas of pain localized in the neck, upper abdomen and back, with the tender regions along the trapezius edge and beneath the rib margins in the affected side, perhaps associated with areas of hyperesthesia and hyperalgesia. Usually, all the noted areas of pain and tenderness will be present. The difficulties arise when the pain in the abdomen is sharp and is associated with varying degrees of muscle spasm and rigidity. In abdominal disease, deep pressure increases the pain over the affected area. Other symptoms, such as constipation or diarrhea, and frequently nausea and vomiting, without symptoms of respiratory disease, usually are present. Again, in abdominal disease, tenderness beneath the ribs posteriorly and along the edge of the trapezius is quite infrequent. Most of the difficulty will lie in the differentiation of disease in the upper abdomen, and such a patient can usually be observed for twenty-four hours or more, when other findings will have developed, clinching the diagnosis of disease above or below the diaphragm. An increased white blood cell count, with an increase in polymorphonuclear neutrophils, will usually be present in both pleural and abdominal disease.

The greatest difficulty will present itself when there is irritation of the diaphragmatic peritoneum. In such instances, a careful history and repeated physical examinations while the patient is under observation should aid in determining the diagnosis.

In pericardial disease, there may be pain referred to the epigastrium and shoulder, but examination of the heart will usually allow one to determine the nature of the disease producing the symptoms. In angina pectoris, when pain is referred to the neck, shoulder and arm and at times to the abdomen, the history of the onset of the disease, together with the examination of the circulatory system, will usually aid in differentiating the condition from diaphragmatic pleural disease.

In patients suffering from chronic forms of the disease, there are remissions in the severity of the symptoms, and occasional acute exacerbations; and most of the time, all of the characteristic findings will not be present. In one, the pain in the shoulder may be present; in another, the pain beneath the ribs, either anteriorly, posteriorly or in the flanks will not be present. Hyperesthesia is infrequent in this form of the disease. Early in the study of this syndrome, it was felt that the roentgen-ray examination would be of great aid, but recently it has been felt that less information has been obtained than had been hoped. In the acutely ill patients, there is often a lagging of the diaphragm on the affected side, as seen under the fluoroscope, though many patients with all of the characteristic physical findings did not have this symptom. In the chronic cases, distortion of the diaphragm due to adhesions is frequently seen, the distortion depending on the type and extent of the adhesions.

The treatment has been that of any other form of pleurisy. Patients who have had the disease for some time will find great relief when the upper abdomen and lower chest is tightly strapped, the diaphragm thus being splinted.

In patients with marked pain in the side or with hyperesthesia, iced packs, usually kept on the chest, for from one to two hours, gave great and often permanent relief of the pain.

4 West Seventh Street.

ACUTE INTESTINAL OBSTRUCTION

WITH SPECIAL REFERENCE TO PARALYTIC ILEUS FOLLOWING ABDOMINAL OPERATIONS

HUGH McKENNA, M.D.
CHICAGO

In 1909 and again in 1913 I [1] published two papers on the subject of acute intestinal obstruction. Since that time I have been keenly interested in the clinical phase of this subject as it has arisen in patients coming under my own observation, and also in the voluminous published reports on this subject.

In reviewing the literature, one is amazed at the conflicting reports pertaining to the fatal factor in acute intestinal obstruction. This is strikingly illustrated in the extensive review by Ellis.[2]

Nesbitt,[3] in 1899, in a study of the content above the occlusion, found that food rich in lecithin resulted in cholin and neurin, and he believed that neurin was the responsible fatal factor in acute intestinal obstruction.

Buchbinder,[4] in 1900, showed that the intestinal wall is not permeable to bacteria until a severe degree of gangrene develops, or until injury is produced in the intestinal wall.

1. McKenna, Hugh: Paralytic Ileus, J. A. M. A. **52**: 1239-1241 (April 17) 1909; Drainage of the Upper Intestinal Loop for the Relief of Ileus, Surg., Gynec. & Obst., 1913, p. 674.
2. Ellis, J. W.: Cause of Death in High Intestinal Obstruction, Ann. Surg. **75**: 429-448 (April) 1922.
3. Nesbitt: J. Exper. Med. **4**: 1, 1899; quoted by Ellis (Footnote 2).
4. Buchbinder: Deutsch. Ztschr. f. Chir. **55**: 458, 1900; quoted by Ellis.

Kukula,[5] in a study of intestinal contents from an occluded bowel, divided the toxic substances into two groups: (*a*) an excessive breakdown of the carbohydrates, and (*b*) putrefaction of proteins. He says that this toxic substance is obscure, but may be extracted with amyl alcohol. This extract is as toxic as the first filtrate of the intestinal content, so the toxin is unchanged by the method of extraction.

Borszeky and Generisch[6] say the toxin is due to *Bacillus coli,* and that *Bacillus coli* is found in the blood and peritoneum before there is any injury to the intestinal wall.

Albeck[7] tested the intestinal wall as to permeability, and concludes that death is due to a toxin found at necropsy, and that the intestinal mucosa is ecchymotic. He says that this toxin is soluble in water, resists boiling, and passes through a Chamberland filter. In backing up his theory, he cites intestinal strangulation without peritonitis.

Wizosck[8] made bouillon cultures under aerobic conditions and obtained the same result as in the original intestinal content. He states that the toxin possesses hemolytic, cytolytic and heat-resisting properties. He thinks that the toxin is bacterial in origin, that there are different toxins from different bacteria, and that bacteria may develop under symbiotic conditions.

Magnus-Alsleben,[9] after feeding meat and apparently after feeding bread, fats and starches, produced a toxic substance from the upper intestinal content and its mucosa which he did not get when he fed milk protein only. He concludes that the toxic agent does not come from the pancreas, as tests made from a pancreatic fistula gave trypsinogen but no trypsin. He thinks that the intact mucosa and liver are retoxifying agents.

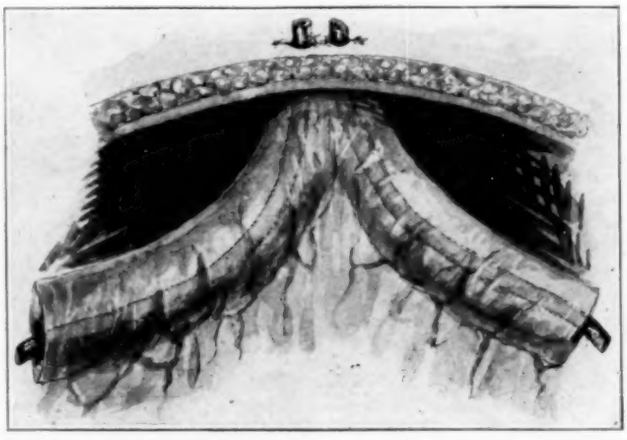


Fig. 1.—Plan of jejunostomy made through small opening in abdominal wall, with two catheters in place.

Von Khautz[10] says that death in mechanical or paralytic ileus without simultaneous peritoneal infection is not due to bacteremia. It is assumed that the toxic substance comes from the intestinal content.

Stone, Whipple and Bernheim say that the toxin is derived from the mucosa of the obstructed small intestine, and that this agent is not destroyed by heat.

Gerard[11] says that a combined histamin derivative is also present in obstruction fluid. Evidence is presented that this is of peptid nature. This article refers frequently to the work of Hanke and Koessler. Koessler[12] writes:

The intestinal content contains normally, as proved in the last two years, toxic amins of the type of histamin and tyramin. Histamin has a constrictor action on the smooth muscle fibers of the bronchi and the intestinal wall. Normally, these toxic substances are not absorbed from the intestinal mucosa. When the mucosa is injured, absorption will take place and might lead to symptoms of severest intoxication. Histamin or a similar amin might play an important rôle in producing spastic constriction of the intestine with a fall of blood pressure and symptoms of general shock. We found enough histamin in the content from the ileum (ileac fistula) to kill the patient if it had been absorbed. In the normal person, it is stored in the liver, where it is gradually catabolized to harmless derivatives. It seems that injury of the normal blood supply, leading to ischemia and necrosis of the mucous layer of the intestine, is probably most frequently the first cause of the ileus, owing to absorption of the toxic material.

Embryologically, the duodenal wall has an extensive network of glandular tubules in striking contrast to any other part of the intestinal tract, although some glands are found in other parts of the canal. These embryologic duodenal tubules are the anlage of the glands of Lieberkühn and Brunner. If the theory respecting the toxic origin of the intestinal content is correct, then there is a scientific basis for the well-established clinical fact that high intestinal obstruction, unrelieved, leads early and rapidly to a fatal termination.

CAUSES

The causes of intestinal obstruction are well known and will not be enumerated here. Interest centers chiefly in one cause, namely, paralytic ileus following abdominal operations. I will deal here, therefore, with this phase of acute intestinal obstruction. It is interesting to note the relative infrequency with which the surgeon sees this condition, as compared even with the relatively short time since the publication of the earlier communications. The explanation of these beneficent results lies chiefly in two factors: (*a*) an earlier diagnosis of acute abdominal lesions with the institution of immediate surgical intervention, and (*b*) a more refined surgical technic in the management of abdominal operations that permit the surgeon to perform the most extensive operations with a minimum of insult to the abdominal viscera. There still remains, however, an appallingly high mortality rate in high intestinal obstruction, and it is toward the solution of this grave problem that my efforts here are directed.

DIAGNOSIS

The clinical picture is so well understood that I will direct attention only to certain salient features that would appear to corroborate the theory of a rapid absorption of a powerfully toxic intra-enteric substance. This reaction gives expression in a rapidly lowering blood pressure, a quickened thready pulse, a pinched face, a cold clammy skin. The patient, in addition to having distention, reversed peristalsis and intestinal vomiting, has the appearance and symptoms resulting from a profound poisoning.

5. Kukula: Arch. f. klin. Chir. **63**: 773, 1901; **65**: 773, 1901; quoted by Ellis.
6. Borszeky and Generisch: Beitr. z. klin. Chir. (Bruns') **36**: 448, 1902; quoted by Ellis.
7. Albeck: Arch. f. klin. Chir. **65**: 569, 1902; quoted by Ellis.
8. Wizosck: Virchows Arch. f. path. Anat. **78**: 82, 1904; quoted by Ellis.
9. Magnus-Alsleben: Beitr. z. chem. Physiol. u. Path. (Hofmeister's) **6**: 503, 1904-1905; quoted by Ellis.
10. Von Khautz: Arch. f. klin. Chir. **88**: 42, 1908-1909; quoted by Ellis.
11. Gerard, R. W.: J. Biol. Chem. **52**: 11 (May) 1922.
12. Koessler, K. K.: Personal communication to the author.

If these patients are seen early, examination of the abdomen by auscultation may be of some value; but I must say that I have paid but little attention to this means of diagnosis. To the experienced surgeon, the most important factors in diagnosis are: (1) history; (2) abdominal distention; (3) intestinal vomiting; (4) heart action and blood pressure; (5) facial expression; (6) leukocytosis, and (7) elevation of temperature. As I enumerated in a previous paper, there are many other diagnostic points, but those outlined are the cardinal symptoms on which to base a radical type of treatment.

TREATMENT

Before the institution of surgical treatment for the relief of obstruction, it is presupposed that all sane methods of medical treatment have been exhausted.

In considering the surgical treatment of high intestinal obstruction, it is gratifying to note the fact that high enterostomy is coming to be more frequently recognized as a logical surgical procedure in the treatment of this condition. Because of the discussion occasioned, chiefly by inexperienced clinicians, respecting the value of treating these patients by passing a duodenal tube by mouth, I will quote from a previous communication:

> Can the duodenal secretions be drained off per os by means of the stomach or duodenal tube? I believe not.
>
> (*a*) Clinical experience in these cases with duodenal lavage has not given good results.
>
> (*b*) Anatomically, it would be difficult to remove all secretions from the duodenum, and particularly so in cases of acute paresis of this portion of the intestinal tract.
>
> (*c*) Drainage of the duodenum must be permanent until the paresis of the bowel has completely subsided.

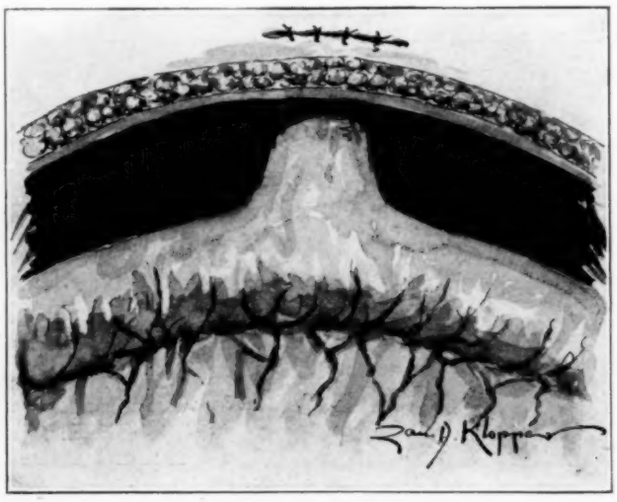


Fig. 2.—Diverticulum produced by performing type of enterostomy described.

Permanence of drainage of the duodenum can most effectively be established by an enterostomy, preferably high up in the jejunum. However, I do not recommend as high a jejunostomy as I did in a previous communication; first, owing to the disturbance with pancreatic digestion resulting in rapid emaciation of the patient if closure of the fistula is not early established, and secondly, because of the rapid digestion of the skin around the enterostomy produced by the trypsin from the pancreatic secretion. It is my opinion that if the operation be performed early enough, enterostomy in any part of the small intestine may give relief. I cannot urge too strongly the necessity of preventing trauma and shock to the abdominal viscera by noninterference with any but the very small loop of distended intestine in which you wish to establish enterostomy. For this reason, I have always maintained that consultation should be arranged in all cases, so that a definite plan of action may be laid down which will enable the surgeon to understand precisely what he intends to do before the operation. I have seen failures of this operation, and have had others reported to me, in which an abdomen was opened in an acute ileus, where the operator, after traumatizing large portions of the viscera and finding no organic obstruction, performed enterostomy. It is needless for me to tell you that with a patient in the extreme degree of shock in which we find them in acute ileus, this extra amount of manipulation of the abdominal viscera is enough per se to produce death.

Any surgeon of experience would recognize the futility of attempting the passage and maintenance of a duodenal tube in the presence of acute distention, reversed peristalsis and practically continuous vomiting. I believe that clinicians will be pretty generally agreed that if by chance the tube were inserted, there would be no likelihood of keeping it in the duodenum, and therefore the procedure would be of no therapeutic importance in this consideration.

I am even more strongly of the opinion that high enterostomy should be performed than I was in my previous discussions. As I have repeatedly emphasized, enterostomy, which is always performed under local anesthesia, is made well above and to the left of the umbilicus, as this location gives entrance to the abdominal cavity at a point at which the upper portion of the jejunum can be picked up most accurately. The first loop of small intestine that presents itself is picked up at the site of the opening. In a large percentage of cases, this will give a loop of small intestine well up in the jejunum.

In my early experience in the postoperative treatment of some of these patients, I was agreeably surprised to note that, within a short time after the performance of enterostomy, normal evacuations began to take place by rectum. This fact was somewhat puzzling until intestinal resection was performed for the closure of the enterostomy. Figure 2 represents the fistulous diverticulum of the intestine at the time of secondary operation, and explains the anatomic arrangement of the bowel which permits the intestinal current to pass in the normal way.

In a recent patient, a boy, aged 7 years, admitted to St. Joseph's Hospital suffering with a desperate condition of general peritonitis following a delayed diagnosis of acute perforative appendicitis, in which an immediate operation of incision and drainage of the abdomen was performed, paralytic ileus was so advanced at the time of admission that, under the most painstaking care, the distention remained, and on the tenth day the obstruction became complete. High enterostomy was performed under local anesthesia, and the patient recovered.

I present this brief history for two reasons, as aside from these there was nothing unusual about this case: (1) the obstruction became complete at a late date, and (2) the enterostomy remained open for only a few days. During this critical period, however, it served a twofold purpose: (1) allowing a direct and immediate escape of gas, and (2) permitting the lavage of the toxic duodenal content by means of the instillation of salt solution. Within a week, practically no intestinal secretion passed out through the artificial stoma. The bowels began moving in the normal way, and the enterostomy opening closed of its own accord, and Figure 3 is a photograph of the abdomen of the patient as it has remained since, with no apparent intestinal

disturbance because of this self-closing enterostomy and its fixed attachment into the abdominal wall.

I present these facts because I have always been of the opinion that enterostomy for acute obstruction should be performed in a precise and definite way. I laid definite stress on this point in a previous paper, and still do so. For this reason I shall review briefly cer-

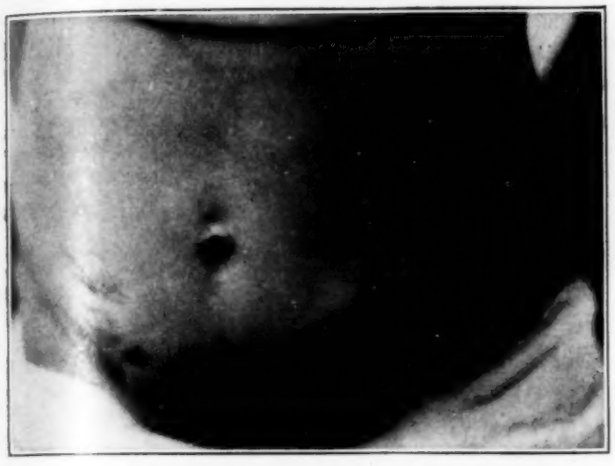


Fig. 3.—Enterostomy that has automatically closed.

tain points in connection with the technic that seem imperative to me:

1. The anatomic location should be such that it will permit picking up the upper jejunum with a minimum amount of trauma.

2. The incision through the abdominal wall should be small, as this arrangement prepares the way for the early formation of a diverticulum of the intestine, which anatomic condition early permits at least a part of the intestinal current to pass in the normal way, after enterostomy has relieved the acute obstruction. This plan is of paramount importance, especially in badly weakened patients in whom, if the entire intestinal content passes out of the enterostomy opening for more than a week, absorption is so interfered with that emaciation swiftly ensues. Moreover, when the enterostomy is high, the pancreatic secretion pouring out on the skin becomes very distressing because of its digestive action. It is therefore of much importance to divert as much of the intestinal content to its normal course as early as possible. This is particularly true in those patients who will not stand early secondary operations for the enterostomy closure.

3. In performing enterostomy, I follow the plan of using one row of Lembert's sutures to approximate closely the serosa of the intestine to the cut edges of the skin. This arrangement invites the early formation of an intestinal diverticulum. Mayo [13] presents what appears to be a rather ideal scheme of performing enterostomy by passing a catheter through the omentum and then invaginating it in the wall for some distance before entering the lumen of the intestine. This plan is worked out with the idea of avoiding a secondary operation for the closure of the enterostomy opening.

Whatever type of enterostomy is performed, I am of the opinion that the procedure having a minimum of intra-abdominal manipulation, with the maximum security against peritoneal contamination, will be considered the operation of choice, irrespective of whether or not a secondary operation will be necessary to close the intestinal fistula. I have always followed the plan of picking up the loop of distended small intestine with rubber mounted forceps, rarely, if ever, introducing the fingers or other instruments into the abdominal cavity; and I wish to place special stress on the point of minimizing the amount of intra-abdominal manipulation in the management of these grave cases.

13. Mayo, C. H.: Acute Intestinal Obstruction, J. A. M. A. 79: 194-197 (July 15) 1922.

CONCLUSIONS

It would appear that a diverticulum may be produced in the formation of the jejunostomy, an anatomic arrangement which permits the enterostomy to perform a dual function: (*a*) the immediate introduction of salt solution into the upper intestine permitting the escape of the intra-enteric toxins and gases; (*b*) the early establishment of the enteric current, a condition which produces normal intestinal absorption and digestion, thereby preventing rapid emaciation of the patient.

104 South Michigan Avenue.

CANCER OF THE URINARY BLADDER CURED BY RADIUM

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AND
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Justification for the report of a single case is, in this instance, furnished by two distinct features: 1. An infiltrating bladder cancer was healed and has not returned in more than seven years. 2. This healing was accomplished by transabdominal radium radiation. One mild intravesical topical application of radium was made, but a review of the record shows that its influence, if any, was insignificant. The case was observed from October, 1914, to March, 1923.

The upper left half shows the normal bladder wall, the lower right half, the invading carcinoma. The solid strands can be observed.

REPORT OF CASE

History.—W. C. C., a white man, aged 56, American, whose family history was unimportant, and in whose personal his-

tory only an attack of cystitis, in 1911, was of any importance in the present connection, had suffered for two months with intermittent hematuria, frequency of micturition and pain in the pelvis, all increasing.

Physical Examination.—There was a general appearance of robust health. The heart and lungs were normal. The blood pressure was 150 systolic, 100 diastolic. The abdomen was normal except for tenderness and a little muscle spasm over the bladder. The urine contained red blood cells and albumin. The prostate gland was a little enlarged. The seminal vesicles felt normal.

Cystoscopic Examination.—Cystoscopy revealed an ulcer with raised edges and a necrotic ground or base the size of a 10-cent piece, on the anterior bladder wall. The remainder of the bladder was normal except for a slight general injection. After an interval of waiting, the symptoms increased, and cancer was diagnosed.

Operation.—Under general anesthesia, the usual suprapubic incision revealed a small mass on the anterior bladder wall, penetrating the wall and involving the adjacent peritoneum. The entire growth, with a liberal margin, was excised. The bladder and abdominal walls were closed down to a small drain in the customary manner.

Convalescence.—After a week of nausea and intestinal distension, there was an uninterrupted recovery, which was complete except for an increased frequency of voiding, attributed to reduced bladder capacity.

Recurrence.—In the summer of 1915, the symptoms set in anew, rapidly increasing until the loss of blood, and more particularly the loss of sleep, due to the necessity of painful voiding every ten minutes, caused great exhaustion.

After several unsuccessful trials, due to vesical irritability, a satisfactory cystoscopic examination was made. An irregular, angry-looking growth, about 3 cm. across, was found on the site of the scar of the previous operation. The remainder of the bladder was injected but not ulcerated. Palpation revealed an induration in and below the abdominal suprapubic scar.

Microscopic Examination.—Recurrent cancer was evident, as the original tissue removed presented the ordinary solid flat cell carcinoma invading the normal bladder in strings, columns and nests, as shown in the accompanying illustration.

Radium Treatments.—August 25, 1915, 230 millicuries of radium emanation in a brass tube 1 cm. long and having walls 1 mm. thick was placed in the end of a silver catheter and held directly against the tumor for fifteen minutes. The application was difficult; and following it, there was for a number of days increased bleeding, pain and frequency. On account of the unfavorable effects of this treatment, it was decided to treat transabdominally. The tumor lay favorably for this kind of treatment, about 1½ inches beneath the skin surface. The radium in the form of emanation in many 1 mm. thick brass tubes 1 cm. long was distributed in a 3½ inch square lead box, 2 mm. thick. This was covered with rubber and placed on a block of gauze 2½ inches thick for the first four treatments, while in the fifth a distance of 4½ inches was employed. The dates and dosages were:

September 16, 1,829 millicuries for five hours; October 9, 1,632 for two hours each, of two areas; November 18, 1,371 for two hours; Jan. 19, 1916, 632, over each of three areas for one hour and thirty minutes; May 11, 2,780 for eleven hours and forty-five minutes.

There was almost immediate improvement following the first external treatment in September. On the fourth day, the urine had lost its red color, and by the end of two weeks all microscopic evidence of blood had disappeared. On only one or two occasions subsequently was blood noted, and after Jan. 1, 1916, bleeding did not recur. From the beginning, the frequency and pain diminished. At the end of a month and a half, the patient was still voiding every hour at night. At the end of four months, tenesmus and pain disappeared. At the end of a year and a half, he had no symptoms and had gained 52 pounds (23.6 kg.) in weight.

Following the first two treatments, there was a severe erythema of the skin. This cleared up completely in two months.

It is now nearly seven years since the last treatment. The patient refuses cystoscopic examination, and so a description of the present intravesical condition is impossible. His general health and the complete absence of any disability of the bladder warrant the assumption of a cure.

CONCLUSIONS

The inference from this case, and it does not stand alone, is that in the treatment of cancer of the bladder the employment of gamma radiation from the exterior of the body is very valuable. It is also susceptible of wide application, as it can be combined with surgical operation and with topical application of radium, as well as with implantation of bare emanation tubes. It is possible, if adequate radium is available and proper use is made of it, to bring any desired amount of radiation to any part of the bladder without serious injury to the skin.

1418 Eutaw Place—Charles and Centre streets.

SUPRACLAVICULAR DEPRESSIONS IN THE DIAGNOSIS OF EARLY PULMONARY TUBERCULOSIS *

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AND
A. H. DUERSCHNER, M.D.
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Supraclavicular depressions, particularly if unequal or unilateral, are generally regarded as suggestive evidence of tuberculous disease at the apex of the lung. In the recent classification of pulmonary tuberculosis adopted by the American Sanatorium Association,[1] a slight depression above the clavicle is mentioned among the physical signs of early or minimal tuberculosis. In attempts to estimate the value of this sign, however, observers apparently have failed to recognize the significance of similar depressions occurring in healthy persons. This is an important fact to establish, because the relative value of a sign in disease is decreased proportionately with the frequency of its occurrence in health. With this point in mind, we made a comparative study of the incidence, distribution and depth of the supraclavicular depressions in 153 healthy adults and 150 patients with incipient pulmonary tuberculosis.

At the same time, an attempt was made to discover methods of differentiating the depressions found in health and in disease.

In the healthy series, comprising 153 adults between the ages of 18 and 50 years, mostly between 18 and 35 years, the proportion of men and women was approximately the same, and the clinical history and the physical and roentgen-ray examinations failed to reveal evidence of pulmonary disease. Persons presenting definite evidence of chest asymmetry due to spinal curvature, injury, occupation, etc., were excluded, because these conditions may occasion depressions and so lead to confusion in a comparative study of this nature.

Although the number of persons here examined is too small to form a basis for any conclusive opinions, still it is large enough to warrant the following impressions:

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* From the New York State Hospital for Incipient Pulmonary Tuberculosis.

1. Classification of Pulmonary Tuberculosis, Am. Rev. Tubere., September, 1922.

1. The depressions are more evident in the lean than in the well-nourished. In the same subject we have noticed them appear with loss of weight, and again disappear with gain in weight, owing probably to a temporary variation in the amount of subcutaneous fat occupying the fossae. Changes in the depressions due to varying nutrition are generally more marked in women, because with them the deposit of fat in this region is normally greater than in men. In some persons the accumulation of supraclavicular adipose tissue is excessive, forming a fatty pad which obliterates all evidence of depressions.

2. The depressions are usually deeper when the muscles about the region of the lung apex are well developed, a fact that probably explains in part the greater depth of the depressions in men than in women, in laborers than in those following a sedentary occupation, and on the right side in right-handed persons and on the left side in left-handed persons.

3. The contraction of these muscles also tends to deepen the depressions.

4. The depressions are notably influenced by the size and shape of the clavicle and the different positions which it may assume.

The study of the clavicle in this respect is both interesting and significant. If the clavicle conforms to the long, heavy, straight type, and if its outer head is on the same line with the inner head, the bone is usually prominent, the supraclavicular space is large, and the depressions are more or less marked (Fig. 1). Conversely, the short type of clavicle, with accentuated curves, the outer head above and well posterior to the inner head, is generally inconspicuous, the supraclavicular space relatively small and the depressions absent or negligible (Fig. 2). There are many gradations between these two extreme types of clavicle, and these partly explain the variations in the depth of the fossae

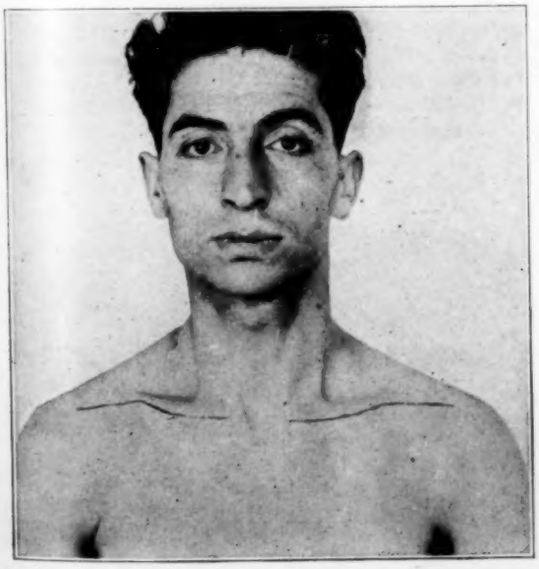


Fig. 1.—Straight horizontal type of clavicle in healthy person. The outer head of the bone is forward and about on the same line with the inner head. The supraclavicular spaces are relatively large. With this type and position of the clavicle, depressions more or less marked are frequently encountered in health.

encountered in health. A notable difference in the shape of the clavicles in the same individual may cause definite inequalities in the depressions (Fig. 3). A change in the position of the clavicle also exercises an important influence on the depressions. For instance, if its outer head is elevated and brought forward, depressions will appear, or existing depressions become accentuated; while, if the outer head is drawn well backward, existing depressions will be partially or completely effaced. Thus, in a person standing erect, the shoulder girdle, of which the clavicle is an integral part, is thrown backward, and existing depressions

Fig. 2.—Accentuated curves of the clavicle in a healthy person. The outer head is well posterior to and above the inner head, and the supraclavicular spaces are relatively small. In health, depressions are often absent with this type and position of the clavicle.

diminished or effaced; while, when the person is seated, the shoulders tend to fall forward, thereby deepening the depressions.

Even during the examination of a healthy person, the depressions at times may be seen to come and go, or be temporarily accentuated on one side and then on the other, and such changes may be observed to be intimately related to alteration in the position of the clavicle. This point is illustrated in the three views of the same subject reproduced in Figure 4. The bilateral depressions shown in Figure 4 *A* are effaced in Figure 4 *B* when the shoulders are thrown backward, and in Figure 4 *C* the relative depth of the depression on the left side is increased because of the forward position of the left shoulder. In other words, these changes, hinging on clavicular movement, frequently account for the disappearance of a depression previously noted, and vice versa. Consequently, in confirming observations on supraclavicular depressions, the position of the clavicle should always be identical. To attain this end, it has been suggested that the person assume a posture of relaxation. One must remember, however, that for every individual there are several postures of equal relaxation, each of them influencing the position of the clavicle and the depth of the depression.

Because of the influence of the previously mentioned factors on the depressions, it is obvious that the statistical data on the incidence and depth of supraclavicular depressions in health, presented in Table 1, are only approximately accurate. However, as these factors also play a similar rôle in disease, the data may be helpfully employed in appraising the sign in the diagnosis of early tuberculosis.

Among the 153 healthy individuals included in Table 1, the depressions were absent or negligible in approximately 25 per cent. Unilateral depressions occurred in

approximately 21 per cent., and of this group the right side showed 18 per cent. as compared with 3 per cent. on the left. In the remaining 54 per cent., bilateral depressions were found. These were equal in 28 per cent., while the right side showed a greater depth in 14 per cent. and the left, in 12 per cent.

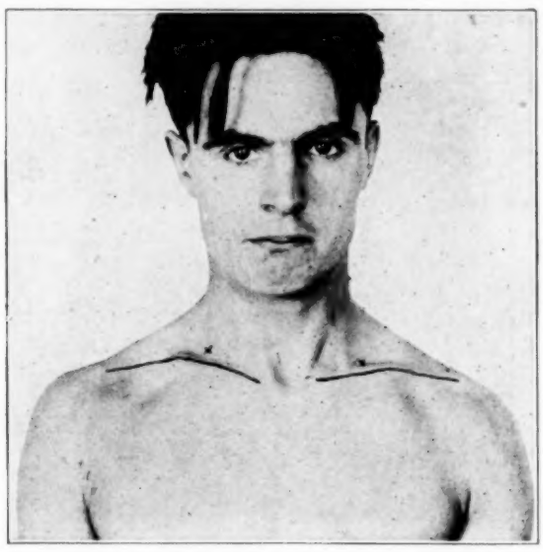


Fig. 3.—Healthy person. Note the difference in the shape of the clavicles, which in part at least explains the inequality in the depth of the depressions.

TABLE 1.—*The Incidence and Depth of Supraclavicular Depressions in One Hundred and Fifty-Three Healthy Persons*

Supraclavicular Depressions *			
Right	Left	Number	Per Cent.
—	—	39	25.4
+	—	27	17.6
—	+	6	3.9
+	+	27	17.6
++	+	15	10.0
+	++	9	5.9
++	++	15	10.0
+++	+	6	3.9
+	+++	3	1.8
++	+++	6	3.9
		153	

* Symbols: —, depression absent; +, depression slight; ++, depression moderate; +++, depression marked.

From a study of Table 1, it is obvious that depressions occur frequently in health; they may be slight or marked, and in distribution, unilateral or bilateral. The incidence and relative depth of the depressions are greater on the right than on the left side.

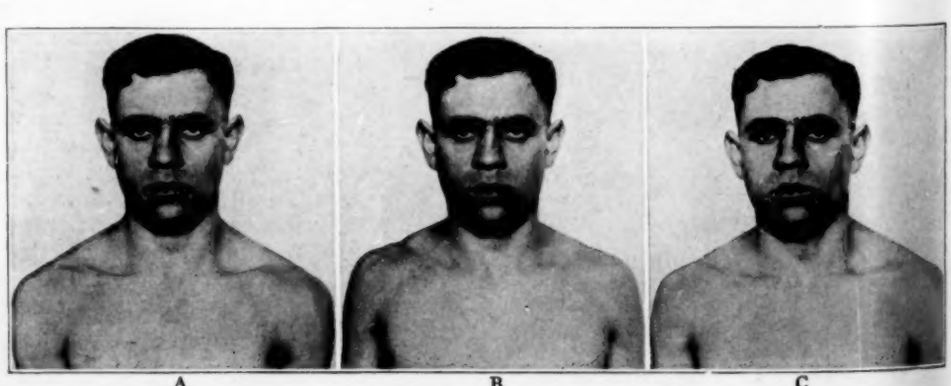
The supraclavicular fossae were studied in 150 cases of incipient pulmonary tuberculosis. The lesion was confined to the region of the apexes. The term "incipient" as here employed is not used in its strictest sense, but more broadly to include lesions distributed over an area not greater than that represented by the upper third of one lung as revealed by the physical and roentgen-ray examinations. Patients with definite chest deformity due to extrapulmonary conditions, or patients presenting tumors or defacing scars of the neck, were not included. The sputum was positive for tubercle bacilli in approximately 32 per cent. of the cases. The difference in nutrition between these patients and the healthy group apparently was not sufficient to cause any appreciable alteration in the sign.

TABLE 2.—*The Incidence and Depth of Supraclavicular Depressions in One Hundred and Fifty Patients Suffering from Incipient Pulmonary Tuberculosis*

Supraclavicular Depressions		Location of Lesion						
		Unilateral Disease		Bilateral Disease				
Right	Left	Right Apex	Left Apex	Greater on Right	Greater on Left	Equally Distributed	Total	Per Cent.
—	—	9	6	6	6	3	30	20.0
+	—	9	8	5	5	4	31	20.6
++	—	0	1	2	1	0	4	2.6
+++	—	1	0	0	0	0	1	0.6
—	+	5	1	1	1	1	9	6.0
—	++	1	0	0	0	0	1	0.6
+	+	4	6	3	3	3	19	12.6
++	+	10	8	5	2	3	28	18.6
+	++	5	6	3	1	1	16	10.6
++	++	6	1	0	0	1	8	5.3
+++	+	0	0	0	0	1	1	0.6
+++	++	0	0	1	0	0	1	0.6
++	+++	1	0	0	0	0	1	0.6
		51	37	26	19	17	150	

In Table 2 are shown the distribution of the pulmonary lesion, and the incidence and distribution of the supraclavicular depressions in 150 cases of incipient pulmonary tuberculosis. In thirty, or approximately 20 per cent., the depressions were absent; in seventy-four, or approximately 49 per cent., they were bilateral, and in the remaining forty-six, or approximately 30 per cent., they were unilateral.

Attempts to correlate the depressions with the site of lesion proved unsuccessful. This is best illustrated in the thirty-seven patients presenting a lesion confined to the left apex. Here the incidence and depth of the depressions were greater on the right (healthy) side. In six of the thirty-seven, the depressions were absent; in nine, confined to the right (healthy) side; in one, confined to the left (diseased) side; in seven, bilateral and equal; in eight, bilateral but deeper on the right (healthy) side, and in six, bilateral but deeper on the left (diseased) side. More or less similar results were obtained in attempts to correlate depressions and



A B C

Fig. 4.—Healthy subject: *A*, depressions bilateral, equal and of moderate depth; *B*, the shoulders are thrown backward and the depressions effaced; *C*, the left shoulder has been brought slightly forward, a position which has increased the relative depth of the depression on this side.

lesions when the disease was confined to the right apex or distributed bilaterally. These conflicting results are explained, (1) by our inability to differentiate depressions in health from those in early tuberculosis, and

Fig. 5.—The pulmonary disease is moderately advanced, bilaterally distributed, confined to the upper lobes and greater on the right side. The depressions are bilateral and of equal depth. From our studies we would be inclined not to attach diagnostic significance to the depressions here present. They occur with the pulmonary lesion but are probably unrelated to it.

(2) by the striking similarity in their incidence and depth in health and in early tuberculosis.

Even in patients suffering from tuberculosis in the moderately advanced stage, it apparently is not possible to establish satisfactorily in most instances any definite relation between the distribution of the disease and the depressions.

TABLE 3.—*The Incidence and Depth of Supraclavicular Depressions in One Hundred and Sixty-Nine Patients Suffering from Moderately Advanced Pulmonary Tuberculosis*

Supraclavicular Depressions		Location of Lesion: Unilateral Disease		Bilateral Disease				
Right	Left	Right Apex	Left Apex	Greater on Right	Greater on Left	Equally Distributed	Total	Per Cent.
—	—	2	2	19	15	2	40	23.6
+	—	2	0	14	9	5	30	17.7
++	—	0	0	3	0	0	3	1.7
—	+	0	0	4	6	0	10	5.9
+	+	3	0	13	4	4	24	14.2
++	+	2	1	18	7	3	31	17.8
+	++	0	1	6	2	1	10	5.9
++	++	1	1	7	3	0	12	7.1
+++	+	0	0	0	1	0	1	0.5
+++	++	0	0	0	2	0	2	1.1
++	+++	0	0	1	0	2	3	1.7
+++	+++	0	1	1	1	0	3	1.7
		10	6	86	50	17	169	

Thus, in Table 3, which presents the depressions and site of lesion in 169 patients suffering from moderately advanced disease, the depressions, notwithstanding the extent of the pulmonary involvement, were absent in no less than approximately 24 per cent., findings similar to those obtained in health and in early tuberculosis.

The moderately advanced cases admitted to Ray Brook are a selected group in good nutrition, which may account for the relatively large number showing no depressions. In the patients who did present depressions, no definite relation could be established in most instances between them and the site and extent of lesion. For instance, in Figure 5, although the depressions are of equal depth, the pulmonary disease, in the moderately advanced stage, is definitely greater on the right side. In Figure 6, although the right lung is apparently healthy, and the left extensively diseased, the greater depression is on the right (healthy) side.

COMMENT

The earlier observers found supraclavicular depressions a constant sign in pulmonary tuberculosis. At that time, the diagnosis was usually delayed until the pulmonary lesion was advanced and the patient emaciated. They apparently attributed the depressions entirely to the underlying lung disease, whereas the major rôle in their production was probably played by the tilting forward of the shoulders from weakness and the associated emaciation. This view is supported by the fact that depressions invariably appear with emaciation, irrespective of its cause. Anatomists and even dressmakers have long recognized this relationship. On the other hand, in well nourished patients suffering from advanced pulmonary tuberculosis, the depressions may be absent.

When depressions have their origin in disease of the underlying lung, they are due to loss of lung volume associated with local retraction of the chest wall. Local retraction of the chest wall sufficient to influence the depressions occurs for the most part with extensive pulmonary disease and marked loss of lung volume. Even here the presence or absence of depressions depends on the extent to which the individual compensatory factors participate.[2]

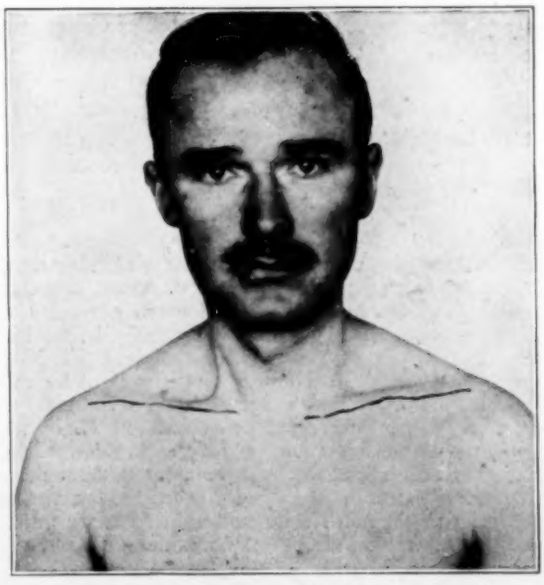


Fig. 6.—Bilateral depressions, slightly greater on right; massive involvement of left lung with antrum formation at the apex; right lung apparently healthy. In tuberculosis, it is not uncommon to find the greater depression on the right side when the lesion is confined to the left lung.

In early disease, the loss of lung volume is slight, and is usually compensated by emphysema or hypertrophy of the lung contiguous to the focus, and there is

2. Bray, H. A.: The Mechanism of Compensation in Pulmonary Tuberculosis, and Its Relation to Physical Signs, Am. Rev. Tuberc. 6: 1008 (Jan.) 1923.

neither local retraction of the chest wall nor change in the soft structures above the clavicle. Therefore, on purely pathologic grounds, one would not expect to find any material change in depressions in early disease.

Although depressions above the clavicle have been regarded as one of the traditional signs for the detection of early tuberculosis, the present study suggests that their value in this respect is open to question.

SUMMARY

1. There is a definite relation between nutrition and the presence and absence of supraclavicular depressions.

2. The depressions are influenced by the size, shape and position of the clavicle.

3. There is a striking similarity in the incidence, distribution and depth of supraclavicular depressions in health and in early tuberculosis.

4. No method was discovered for differentiating depressions in health from those in early tuberculosis.

5. Attempts to correlate depressions with the site and extent of the lesion in early disease have proved impracticable.

6. Although depressions occur with early disease, they are probably not due to the pulmonary lesion.

7. Except possibly in rare instances, supraclavicular depressions are of questionable value in the diagnosis of early pulmonary tuberculosis.

BACILLARY DYSENTERY

REPORT OF CASE, WITH A STUDY OF THE INTESTINAL BACTERIOPHAGE *

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An opportunity recently presented itself to study a case of bacillary dysentery caused by a laboratory accident. The case seems to justify report, since (*a*) the infecting organism was known; (*b*) the time of infection and therefore the incubation period was known; (*c*) the carrier state followed, and (*d*) a study of the intestinal bacteriophage was made.

REPORT OF CASE

On the afternoon of Oct. 25, 1922, while filtering a culture of *B. dysenteriae* (Flexner), my hands became badly contaminated. The hands were washed thoroughly and rinsed with 5 per cent. compound solution of cresol and the incident forgotten until after the onset of the disease. There were no symptoms until the next evening, twenty-eight hours after the accident. At this time, chilly sensations suddenly developed and persisted throughout the evening. There was no rigor. Extreme weakness and a severe throbbing headache set in and became increasingly more marked throughout the night. During the night there were seven movements, which became increasingly more fluid and showed more and more mucus. There was no blood. Abdominal distress was not marked.

A clinical diagnosis of bacillary dysentery was made, and transfer to the New Haven Hospital was advised. The subsequent course of the disease at the hospital was very brief. At the time of admission, the temperature was 102.2 F.; pulse, 120; respiration, 22, and leukocyte count, 14,000. *B. dysenteriae* (Flexner) was isolated from the stool.

The pulse and temperature remained elevated for only thirty-six hours, at which time there was a marked clinical improvement.

There had been twelve stools the first day and six the following night. After this time, the diarrhea ceased entirely, and the stools became normal. Cultures of the stools, however, except for one on the seventh day after the onset, continued to show *B. dysenteriae*. On the tenth day after the onset, permission to go home under quarantine restrictions was granted. On the eleventh and twelfth days, stool cultures were reported negative for *B. dysenteriae*, and because of this, quarantine was discontinued on the thirteenth day. The special precautions that had been observed while quarantined were neverthless continued, and the stools were examined at weekly intervals for the next two months. One week after I had been discharged as cured, *B. dysenteriae* was again isolated from the stool. All other examinations were negative.

The finding of *B. dysenteriae* a week after two consecutive negative cultures emphasizes that this arbitrary test, too often accepted as final, is not satisfactory evidence of the nonexistence of the organism in the intestine, and that neither the patient nor the physician should be led to a false sense of security by it. This observation is not new, attention having been directed to it many times, especially in connection with typhoid fever. The isolation of organisms of the typhoid-dysentery group from stools of carriers is necessarily attended with more or less of an element of chance, and the failure to find organisms even in heavily infected material on two consecutive trials is a coincidence not at all outside the bounds of possibility. In order to prevent the dissemination of *B. dysenteriae*, the patient released from quarantine on the strength of two negative tests should be kept under observation; the stools should be examined over a period of weeks, and he should be instructed in methods for caring for himself in a sanitary way.

THE AGGLUTINATION REACTION

The agglutination reaction of the blood was followed. On the eighth day it agglutinated a stock culture of *B. dysenteriae* (Flexner) treated with formaldehyd, in dilutions up to 1:80, while the recovered strain was agglutinated only in the lowest dilution, 1:20. A month and a half later, there was frank agglutination with the formaldehyd-treated strain in 1:20 dilution only, with loss of whorl in the 1:40. Both the infecting and recovered strains showed loss of whorl in the 1:20 and 1:40 dilutions. Four months after the onset, the only sign of agglutination was a loss of whorl in the first tube with the infecting strain.

These results are summarized in Table 1. The gradual loss of agglutinins from the blood is evident.

TABLE 1.—*Agglutination Reaction with B. Dysenteriae (Flexner)* *

	1:20	1:40	1:80	1:160	Control
11 Days after Onset:					
Antigen treated with formaldehyd..	++	++	+	±	−
Recovered strain.....	+	−	−	−	−
44 Days after Onset:					
Antigen treated with formaldehyd..	+	±	−	−	−
Recovered strain.....	±	±	−	−	−
Infecting strain.....	±	±	−	−	−
124 Days after Onset:					
Antigen treated with formaldehyd..	−	−	−	−	−
Recovered strain.....	−	−	−	−	−
Infecting strain.....	±	−	−	−	−

* In the tables, + indicates growth; −, no visible growth; I, presence of irregular colonies; 1 and 2, separate tests, made at different times.

CARRIER STATE

During the time that I was quarantined in my home, and for a month or so more while I continued to take precautions to avoid contamination, I became more and more impressed with the difficulties involved. Mention of the precautionary measures used will indicate what is necessary.

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In general, it should be borne in mind that the anal region is contaminated, and that everything that might possibly come in contact with it should be burned, boiled, or soaked in an antiseptic solution. The simplest and best way of avoiding clothes contamination

TABLE 2.—*Presence of Bacteriophage in Stools*

Days After Onset	Infecting Strain	Bacteriophage Present	Recovered Strain	Bacteriophage Present
Control	1 +++++ 2 +++++	No	+++++ +++++	No
4	1 +++ 2 ++	Yes	+++ I ++	Yes
6	1 — 2 —	Yes	+++ I +++ I	Yes
7	1 ++ I 2 +	Yes	+++ I ++ I	Yes
8	1 ++++ 2 ++++	Yes	+++ I ++++	Yes
9	1 ++ I 2 +	Yes	++ I ++ I	Yes
21	1 +++++ 2 +++++	No	++++ I (?) +++++	No

is the wearing of a napkin, night and day, which may be burned. A covered container should be provided in which to soak undergarments, night clothes, towels, etc. It is desirable to have a receptacle with a relatively strong antiseptic solution in which feces should be kept for a few hours before being flushed into the sewerage system. This also avoids contamination of the toilet seat. The only type of bath allowable is a sponge bath, as a tub or shower bath contaminates not only the bath tub or shower room, but the whole body as well.

While it is obvious that it is useless to expect a patient to carry out these measures unless he is of average intelligence and at the same time willingly cooperative, nevertheless, there is no reason why an intelligent, responsible person taking these precautions should not be allowed freedom from prolonged quarantine restrictions.

STUDY OF THE INTESTINAL BACTERIOPHAGE (D'HÉRELLE'S PHENOMENON)

A 5 gram specimen of each stool for bacteriologic examination was inoculated into 50 c.c. of alkaline peptone water and, after incubation over night, set aside in the refrigerator. Later, these cultures were examined for filtrable bacteriolytic agents (the bacteriophage), according to the method of d'Hérelle; namely, filtration through infusorial earth, Berkefeld filters and testing this filtrate by adding it to alkaline peptone water cultures of the organism to be tested against; then, after overnight incubation, subculturing on agar slants. The presence of the bacteriophage is manifested by a clearing of the liquid culture and by sparse growth, even to apparent sterility, when the bacteriophage is very active, by irregular, moth-eaten appearing colonies, or by plaques or bare areas on heavy bacterial growths on agar subcultures. Each test was controlled by a culture treated in the same way, except that no filtrate was added.

The filtrates from the stools of the fourth, sixth, seventh, eighth, ninth and twenty-first days after the onset were tested for bacteriophage action with both the infecting and the recovered strains, these strains being identical except that the recovered strain had had one human passage. The results are shown in Table 2. It will be seen that bacteriophage against the Flexner organism was present in the filtrates of stools from the fourth to the ninth days, but was not present twenty-one days after the onset. In stool filtrates examined occasionally since then, there has been no bacteriophage action demonstrable. On the whole, the bacteriophage seemed to attack the infecting strain more heavily, but produced more irregular colonies in its reaction toward the recovered strain.

The filtrate from the stool of the eighth day after onset of symptoms was found to act on *B. dysenteriae* (Shiga) and *B. coli*, as well as on *B. dysenteriae* (Flexner). It did not attack the stock strains of *B. typhosus*, *B. paratyphosus* A, or *B. paratyphosus* B. The other filtrates were not tried with these organisms.

SUMMARY

A study was made of a laboratory infection with *B. dysenteriae* (Flexner). The incubation period was twenty-eight hours. The duration of the disease was thirty-six hours. The carrier state lasted at least two weeks. Examination of only two consecutive negative stools is unreliable as a criterion for release from quarantine. Study of the intestinal bacteriophage showed lytic action present in the stool filtrates from the fourth to the ninth day after onset, but no longer demonstrable by the twenty-first day.

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AGGLUTINATION TEST FOR THE PRESENCE OF BACILLUS DIPHTHERIAE IN FIELD (MIXED) CULTURES

PRELIMINARY NOTE *

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The problem of differentiating true *B. diphtheriae* from diphtheroids and other morphologically similar species of micro-organisms is one of constant interest and often of considerable difficulty to bacteriologists and public health laboratory workers. The criteria ordinarily applied in the routine examination of throat cultures are typical morphology and virulence. These satisfy the requirements in the great majority of instances when the cultures are taken from the exudate in well-marked cases of diphtheria when very little doubt could possibly arise as to diagnosis. In the examination of smears from such cultures, every field of the microscope, as a rule, presents great numbers of granular and beaded forms of *B. diphtheriae*, chiefly Types C and D in Wesbrook's classification. It is not difficult in these circumstances to isolate *B. diphtheriae* in pure culture, to perform virulence tests and to determine the carbohydrate fermentation reactions. If any doubt whatever exists, protection experiments with mixtures of known diphtheria antitoxin and toxin produced by the strain of micro-organism under investigation may be made and identification finally established with certainty. There seems to be general agreement that micro-organisms presenting the morphology of any of Wesbrook's types, fermenting glu-

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cose, lactose, mannite, dextrin, saccharose or glycerol, and yielding diphtheria toxin as shown by positive subcutaneous or intracutaneous tests are *B. diphtheriae*.

Since 1906 very considerable advances have been made in the matter of simplification of technic in the determination of virulence of strains of *B. diphtheriae*, largely as a result of Römer's [1] demonstration of the specific reaction following the intracutaneous injection of minute amounts of diphtheria toxin. Neisser [2] employed living cultures of *B. diphtheriae* instead of the filtrates of such cultures, and Zingher and Soletsky [3] have modified Neisser's method in such a fashion that diphtheria antitoxin is given to a control animal before or at the time of the test, and small amounts (0.15 c.c.) of saline suspensions of several cultures to be tested are injected intracutaneously into one guinea-pig. This, of course, results in a considerable saving of animals. Eagleton and Baxter [4] have quite recently standardized the procedure of Zingher and Soletsky.

These methods all require the isolation of *B. diphtheriae* in pure culture from the original mixed field culture, and there are certain very serious disadvantages in such methods. Not at all infrequently the isolation from the field culture of the strain of *B. diphtheriae* in pure culture for virulence testing is difficult or impossible. This, of course, is particularly likely to be the case when the slant of Löffler's blood serum medium on which the original field culture has been made is covered with colonies of many other micro-organisms and relatively few colonies of *B. diphtheriae*. This may happen when cultures are improperly taken or in cultures from mild clinical cases of diphtheria or in convalescent or contact carriers harboring perhaps but few diphtheria bacilli. A method recently described by Force and Beattie [5] of testing field cultures directly by intracutaneous injection of the whole mixed culture is without such disadvantages and marks a decided step in advance in the determination of virulence of cultures of *B. diphtheriae*. It would appear, further, that the intracutaneous method of Force and Beattie, employing whole field cultures, is superior to the subcutaneous method proposed by Wayson.[6] Havens and Powell [7] have confirmed the work of Force and Beattie.

There is one additional criterion in identification which, until recently, has received little consideration; that is specific serum agglutination. Various early workers, Landsteiner (1897), Nicolle (1898) and others were unable to demonstrate agglutinins for *B. diphtheriae* in antitoxic serums. Graham-Smith has reviewed the literature dealing with agglutination of *B. diphtheriae* down to 1906 in the monograph by Nuttall and himself.[8]

In the course of other experimental work we have made certain observations on the agglutination of field cultures which may have considerable practical importance, and for that reason we have dealt with them in this preliminary communication. As a result of the work of Durand,[9] Mason,[10] Havens,[11] Park, Williams and Mann,[12] Paxson and Redowitz,[13] Bell,[14] Baxter and Eagleton [15] and others, it has been abundantly established that there exist several serologic types of *B. diphtheriae*, and that these can be differentiated by means of the reaction of agglutination and absorption of agglutinins (Durand and Bell). Furthermore, both Durand and Mason have shown that it is possible by means of serum agglutination to distinguish very definitely and clearly cultures of *B. diphtheriae* from various strains of diphtheroids. Durand carefully investigated sixty cultures of diphtheroids and was able with a diphtheria-agglutinating serum in every instance to distinguish them from true *B. diphtheriae*. Mason, in a study of ten strains of micro-organisms "morphologically diphtheroids" isolated from various sources, found that they were inagglutinable with diphtheria agglutinating serum. We have been able to confirm and extend Durand and Mason's results. In no instance have we obtained agglutination of a diphtheroid strain (by diphtheroids are meant solid or barred types, not fermenting any carbohydrate tested and giving negative intracutaneous virulence tests) with diphtheria agglutinating serum. For the purpose of investigating the relationship existing between virulence and agglutinability, we have examined a large series of pure cultures of *B. diphtheriae*. The results of these and other studies will be communicated later. During the progress of this work, we were led to investigate the possibility of specific serum agglutination of mixed field cultures of *B. diphtheriae*, and our results are presented herewith.

Thanks to the courtesy of Dr. Wilfred H. Kellogg, director of the State Hygienic Laboratory of the California State Board of Health, we were able to obtain 104 field cultures received in the laboratory for diagnosis. These cultures were examined in smears stained by acetic toluidin blue by members of the staff of the state hygienic laboratory and reported in the usual way, on the basis of smear examinations, as positive or negative. The cultures were received from clinical cases, from convalescent carriers and from contacts. When the smears had been made from the field cultures, after from eighteen to twenty-four hours of incubation they were then given to us for agglutination experiments.

METHOD OF PROCEDURE

The cultures were again placed in the incubator for from eighteen to twenty-four hours. They were then taken out, and the growth on the surface of the slant of Löffler's blood serum was washed off with 2 c.c. of sterile physiologic (0.9) sodium chlorid solution. The emulsions of mixed cultures so prepared were used as antigens, and macroscopic agglutination tests were carried out with two monotypical diphtheria agglutinating serums in dilutions ranging from 1:10 to 1:640. Each macroscopic agglutination tube contained 1 c.c. of serum dilution and 0.1 c.c. of antigen (emulsion of field culture). The tubes, after being set up, were placed in a water bath at 56 C. for two hours, then left in the icebox and read the next day, usually after from sixteen to eighteen hours. The emulsions used as antigens were thus forty-eight hour cultures of the colonies of micro-organisms contained in the original field culture. This is, we believe, a point of considerable importance.

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RESULTS

Of fifty-two cultures which on smear examination were reported positive, forty-seven gave a positive agglutination with one or both type serums in dilutions up to 1:640. The remaining five cultures were not agglutinated with either serum. This was probably due to the fact that they were representatives of other agglutinative types of *B. diphtheriae*. Of the cultures reported negative on smear examination, fifty-two in all, forty-seven also gave negative agglutinations. The remaining five cultures, reported negative from smear examination, gave positive agglutinations. These discordant results are of considerable interest. The first culture was sent to the laboratory for examination for release from quarantine and was taken from a convalescent carrier, from whom twenty-three cultures in all had been taken. Agglutinations were positive in dilutions of 1:640 with both type serums. The second positive agglutination test obtained when a negative smear was reported was with a culture for first diagnosis. This culture was taken from a student who had had a mild sore throat for several days and had received local treatment. A second culture taken from this man some days later was negative by both smear examination and agglutination.

A third positive agglutination with a culture on which a negative smear report was given was a culture for first diagnosis. The history of the patient from whom the culture was obtained was as follows: The child had had a sore throat for four days. A physician was called, and on examination found a small spot on one tonsil. He diagnosed diphtheria. A second physician who was called said the case was not diphtheria, but he took a throat culture. This culture was negative in smear but positive by agglutination. The physician reported that the spot on the throat was easily rubbed off without bleeding, and the child recovered without the use of diphtheria antitoxin.

Positive agglutination tests were obtained in two other instances in which negative reports on smears were made. These cultures were taken to test for release and were from convalescent carriers.

COMMENT

There is a certain amount of presumptive evidence in these five cases that the agglutination reactions which were positive though smears were negative may have more correctly reflected the true clinical condition. Spontaneous agglutination may occur in dilutions of 1:10 with field cultures agglutinated with specific diphtheria agglutinating serums. This has not been encountered in higher dilutions. Inhibition of agglutination, the so-called prezone phenomenon, was not observed in the agglutination of field cultures. This has been noted, however, in agglutination of pure cultures of *B. diphtheriae* by monotypical serums. Field cultures taken twenty-four hours previously have been employed as antigens, but the growth, as a rule, is less luxuriant and the preparation of satisfactory emulsions for antigens is difficult. Rapid agglutination tests by the centrifugalization of mixtures of agglutinating serums and emulsions of field cultures have been tried, and the results have corresponded with those obtained, the technic described above being employed.

When the rapid method is used, results can be read about thirty minutes after the mixtures of antigen and agglutinating serums are made and then centrifugalized for five minutes. This, of course, means that the entire procedure may with this method be completed within twenty-four hours after the original field culture has been taken.

Cultures have been made from four definite clinical cases of diphtheria, and the results of smear examinations, intracutaneous virulence tests and specific serum agglutination have been correlated. In these few instances there was complete correspondence in results obtained. Agglutination of (artificially prepared) mixtures of *B. diphtheriae*, staphylococci and streptococci have also been observed. These observations will be described more fully later.

Considerable difficulty may be encountered in the preparation of satisfactory agglutinating serums. This has been noted by many who have endeavored to utilize rabbits for the production of diphtheria agglutinating serums. By repeatedly washing emulsions of *B. diphtheriae*, even twelve times if necessary, as recommended by Moloney and Hanna,[16] we have obtained emulsions which, on injection intracutaneously into guinea-pigs, have given negative virulence tests. Not all strains of *B. diphtheriae* can be thus washed free of toxin. This is the procedure followed at present, however, and Dr. Ruth L. Stone, working in this laboratory, has recently obtained a diphtheria-agglutinating serum in a rabbit in less than three weeks after the first series of injections, having a titer of 1:3,200 complete and 1:6,400 partial agglutination. The method of giving injections intravenously on three successive days, originally proposed by Gay and FitzGerald[17] for the rapid production of hemolysins, was followed in this instance.

In order to determine whether this method of agglutination of field cultures may be substituted for intracutaneous virulence tests in guinea-pigs, and also whether it may be desirable to employ it as a routine procedure before cultures are reported negative, further work is contemplated.

It is proposed to prepare widely polyvalent agglutinating serums by the immunization of horses with a number of different serologic (agglutinative) types of *B. diphtheriae* and to use this in a parallel series of virulence and agglutination tests of field cultures. It will also be necessary to ascertain whether avirulent diphtheria bacilli give positive agglutination tests. We have no evidence on this later point as yet.

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Eugenics, Heredity and Tuberculosis.—Our keenest interest and perhaps the most practical problems center not about unit-character differences in man but about those more complicated types of heredity expressed in continuous and irregular variation. Considering such human characteristics as resistance and susceptibility to disease, variations in physical and mental endurance, initiative, industry and ambition, emotional stability and power of application, capacity for accurate or abstract thought, what we most want to know is not the exact nature of the hereditary mechanism, but simply to just what extent these conditions are dependent on heredity and to what extent they may be controlled by environment. From a eugenic point of view, the question as to the exact number and linkage relationships, of factors responsible for susceptibility to tuberculosis is of no great practical value. It is sufficient to know to just what extent heredity is actually responsible.—P. W. Whiting: *Nation's Health* **5**:136 (March) 1923.

SIMULTANEOUS LIGATION OF VEIN AND ARTERY

AN EXPERIMENTAL STUDY *

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Makins called attention to the possible advantage of simultaneous ligature of the accompanying vein if an artery is occluded. In his Hunterian Oration, Makins [1] makes the following statement:

> These considerations lead me not only to regard obligatory simultaneous occlusion of a main artery and vein as a negligible factor in the risk of gangrene of the limb, but to hold further that the procedure is preferable whether the vein be wounded or not, the result of the combined procedure being to maintain within the limb for a longer period of time the smaller amount of blood supplied by the collateral circulation.

Oeppel [2] ascribed the good results which sometimes follow operative arteriovenous anastomosis (the operation also known as reversal of the circulation) to the fact that such a procedure obstructs the vein, and he was led to substitute simple occlusion of the vein to accomplish the same result. La Roque [3] has reported a case of successful simultaneous occlusion of the femoral artery and vein. In this report is an excellent summary of the prevailing opinion as regards this question. Halsted [4] has expressed the opinion that simultaneous ligation of the vein is probably the preferable procedure in certain instances in which it is necessary to occlude the artery, but he states that it would seem advisable to wait until ligation of the vein is clearly indicated. Neuhof and St. John [5] have recommended simultaneous ligation of the vein when it becomes necessary to occlude a primary artery for hemorrhages due to infection.

THREE SERIES OF EXPERIMENTS

In order to study the changes in an extremity which follow obstruction of the primary artery alone and the simultaneous occlusion of the vein and artery, three series of experiments were done:

1. Experiments in which the effect on the temperature of the tissues distal to the ligatures was studied.
2. Experiments in which the blood pressure distal to the ligature was measured.
3. Experiments to test the comparative frequencies of gangrene from simultaneous ligature of artery and vein, and ligature of the artery alone.

Dogs and rabbits were used for the experiments. All experiments were carried out under complete anesthesia, and every effort was made to prevent any unnecessary pain or suffering. Only one experiment in each series will be described in detail. The experiments were repeated sufficiently often to demonstrate the constancy of the observations described.

1. *Experiments to determine the changes in temperature of the tissues of the extremity distal to ligature of the primary artery alone and the simultaneous ligature of artery and vein.*

In general, the maintenance of the temperature of the tissues of extremities above that of the surrounding air is an index of the amount of blood flowing through those extremities.

If the temperature of one extremity falls and the temperature of the body and surrounding air remains constant, it can be assumed to be due to a decreased flow of blood through this extremity.

Large dogs were used for these experiments. The animals were anesthetized by the administration of paraldehyd. Thermometers were inserted into the tissue of both feet and thighs of the posterior extremities, and into the rectum. The room temperature was recorded.

The abdomen was opened in the midline. The left common iliac vein and the left iliac artery were exposed. Suitable clamps for obstructing these vessels were provided. After this preparation, the temperature in the extremities was observed until it became constant. The left iliac artery was then clamped, and temperature readings were recorded until the temperature of the left thigh and left foot became constant. The common iliac vein was then clamped, and the readings were again recorded until a constant was reached. In some experiments, the vein was clamped first and the artery second. In other experiments, the effects of removal of the clamp from one or the other vessel or both vessels were observed. In some experiments, the observations were continued for four hours. Thirteen experiments were done. The results of these experiments were the same in all instances. Table 1 and Chart 1 show the results of a typical experiment.

From these experiments it was evident that ligation of the primary artery of the extremity resulted in a fall in the temperature of all the tissues distal to the

TABLE 1.—*Temperature Changes at Fifteen Minute Periods*

Room	21.6	21.6										
Rectal	38.0	38.0										
Right thigh	37.6	37.6	Artery ligated	21.4	21.4	21.3	21.3	21.2	Vein ligated	21.2	21.2	21.1
Right foot	35.0	35.0		38.0	37.8	37.6	37.5	37.4		37.4	37.3	37.0
Left thigh	37.5	37.5		37.6	37.6	37.5	37.5	37.5		37.6	37.5	37.5
Left foot	35.0	35.0		35.0	35.0	35.0	34.9	34.8		34.8	34.4	34.4
				37.2	37.0	36.6	36.0	35.8		35.0	34.8	34.5
				31.0	29.8	29.5	29.0	28.9		27.4	27.0	27.0

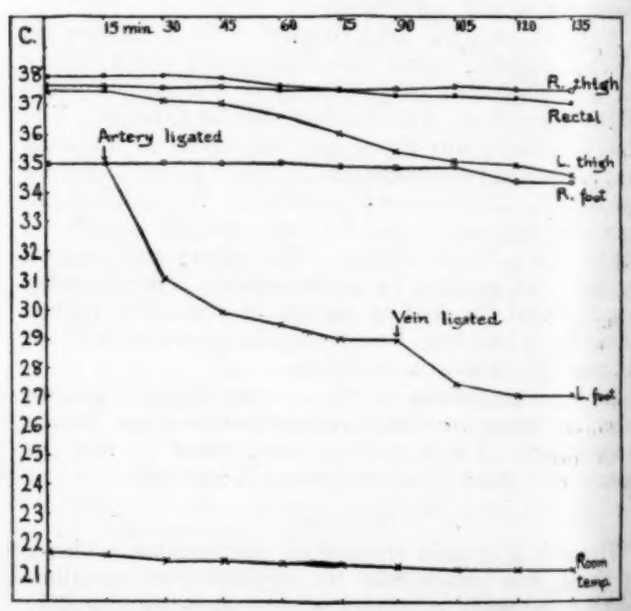

Chart 1.—Temperature changes of the extremities following ligation of the primary artery of an extremity and a subsequent ligation of the corresponding vein.

* From the Department of Surgery, Washington University Medical School.

1. Makins, G. H.: Lancet **1**: 249 (Feb. 17) 1917.
2. Oppel: Zentralbl. f. Chir. **2**: 1241, 1913.
3. La Roque, G. P.: Ann. Surg. **73**: 265 (March) 1921.
4. Halsted: Personal communication to the authors.
5. Neuhof, H., and St. John: Surg., Gynec. & Obst. **29**: 130 (Aug.) 1919.

ligature. The fall in temperature was progressively greater, the more distad the tissue temperature was measured. The temperature of the tissues was immediately restored if the arterial obstruction was removed. If the artery was obstructed and the temperature of the tissues distal to the ligature became constant at a level below normal but still above room temperature, then occlusion of the vein resulted in a further fall of tissue temperature. Furthermore, this fall of temperature took place in all tissues of the extremity. Occlusion of the vein alone caused a fall in tissue temperature of the entire extremity distal to the occlusion.

These experiments show that simultaneous ligature of the vein and artery results in a greater reduction of volume flow of blood through the entire extremity than ligature of the artery alone.

2. *Experiments in which the changes in blood pressure in the veins and arteries distal to the ligatures were measured, after ligature of the artery alone and after simultaneous occlusion of the vein and artery.*

Large dogs were used for these experiments. The animals were anesthetized with paraldehyd. The abdomen was opened in the midline. The left iliac artery and vein were exposed. The left iliac artery was divided near its origin. Cannulas were inserted in both the proximal and distal stumps, and the blood pressure in each was determined by mercury manometer, maximal and minimal value, and recording tambour methods. The venous pressure was determined in the common iliac vein by inserting a hollow needle into the vein (without occluding the vein) and measuring by a mercury manometer the lowest pressure that would cause physiologic sodium chlorid solution to flow into the vein. The vein was then clamped proximal to the needle cannula and the pressures again measured in both stumps of the artery and vein. The effects of removal of the occlusion of the vein alone were also observed. Six experiments were carried out. The results of a typical experiment are shown in Chart 2.

These experiments demonstrated that the intravascular pressure in both the arteries and veins of an extremity is decreased by ligature of the primary artery alone. If the artery is ligated and the intravascular pressure in both arteries and veins becomes constant at a level lower than normal, then obstruction of the vein results in a rise in intravascular pressure in both arteries and veins distal to the ligatures. The blood pressure in the veins rises proportionately more than in the arteries, so that the difference in arterial and venous pressures is less after ligation of both artery and vein than if the artery alone is occluded. The marked increase in intravascular pressure within the veins would indicate an increased resistance to outflow of blood from the extremity, and consequently a decrease in the amount of blood flowing through the extremity.

3. *Experiments to test the frequencies of gangrene after ligature of the artery alone and after simultaneous ligature of the artery and vein.*

Rabbits, rather than dogs, were used for these experiments, because the terminal branching of the aorta is more suitable for the constancy of the operative technic. Also, the ligature of the vessels can be accomplished with less trauma in rabbits than in dogs. The aorta in the rabbit terminates very much the same as in man. This is not true in dogs, in which a common iliac artery is not usually found. The operative technic was the same in all instances. All of the operations were performed by one of us, and the two types of operation were performed alternately in order that there should be no difference resulting from the facility of performing the operation acquired by its frequent repetition.

The animals were anesthetized with ether. The abdomen was opened in the midline. The right common iliac artery was exposed at the site of origin of the hypogastric artery. The right common iliac vein was then freed from the surrounding tissue. The isolation of the vessels was done with the least possible trauma. In one series of experiments, the common and external iliac arteries were ligated just proximal and distal to the origin of the hypogastric artery. This procedure resulted in complete obstruction of both the external iliac and hypogastric arteries at their origin. It had been found from preliminary experiments that this procedure resulted frequently in gangrene. In the other series of experiments the same technic was followed in ligation of the arteries, and the right common iliac vein was ligated.

All animals were carefully observed after operation for the manifestations of disturbed circulation of the extremity. In all instances there was evidence of a marked deficiency of circulation. In every instance, in the right extremity there was marked ischemic muscular weakness. In those experiments in which gangrene did not appear, there was no noticeable difference in the results of the two operative procedures. All animals that did not develop gangrene and did not die from some other cause completely recovered from all symptoms of circulatory disturbance. These animals were subsequently killed, and the arterial circulation was studied by means of barium sulphate injections and roentgenograms.

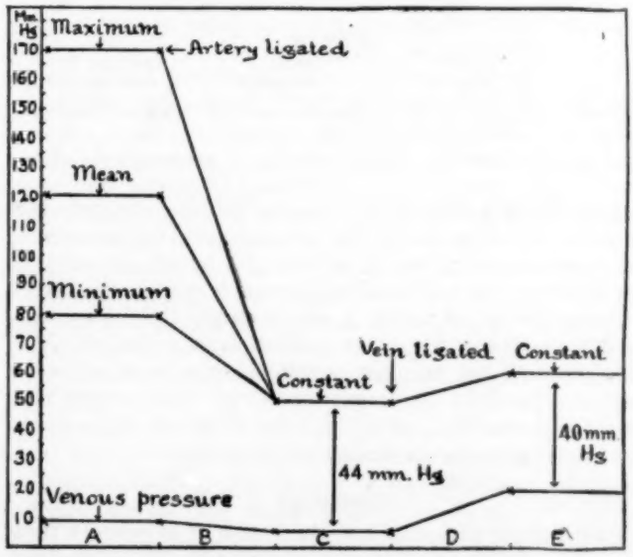

Chart 2.—Changes in the pressure in the arteries and veins distal to the occlusion of the primary artery and subsequent occlusion of the vein: *A*, normal maximal, minimal and mean arterial pressures of the external iliac artery and the normal pressure in the common iliac vein; *B*, effect of ligation of the external iliac artery alone on the pressure in the artery and vein distal to the occlusion; it will be noted that the pulse pressure completely disappears and the intra-arterial pressure falls; there is a slight fall in the venous pressure; *D*, effect of subsequent occlusion of the common iliac vein; it will be noted that both the arterial and venous pressure rises; the arterial pressure rises to a point almost as high as the minimal pressure in the unobstructed artery, and the venous pressure higher than the normal.

Thirty-nine experiments were carried out. The results of these experiments as regards the relative frequencies of gangrene following ligation of the artery

alone and following simultaneous ligature of artery and vein are shown in Tables 2 and 3.

These two series of experiments show a very striking difference in the frequency of gangrene. The operative technic in all the experiments was as nearly identical as it could be made, except that in one series the right common iliac vein was ligated. In order that any possible influence of trauma of the sympathetics should be the same in the two series of experiments, in those experiments in which the artery alone was ligated the vein was isolated just as it was in the series of experiments in which it was ligated. In the experiments in which the artery alone was occluded, 71.5 per cent. of the animals developed gangrene of some degree. In the experiments in which both artery and vein were occluded, only 33.3 per cent. of the animals developed any manifestation of gangrene.

TABLE 2.—*Ligation of the Right Common and External Iliac Arteries*

Number	Day of Occurrence of Gangrene	Condition of Leg	Condition of Animal	Day after Operation
1	2d	Gangrene	Died, gangrene	8th
69	19th	Gangrene	Died, gangrene	21st
51	14th	Gangrene	Died, ?	16th
68	30th	Ulcer	Healed, alive	68th
17	4th	Gangrene	Killed	5th
98	....	No gangrene	Died, ?	7th
13	2d	Gangrene	Died, gangrene	4th
81	....	No gangrene	Condition good	47th
47	....	No gangrene	Died, ?	9th
73	2d	Gangrene	Died, gangrene	4th
8	2d	Gangrene	Died, diarrhea	10th
74	35th	Ulcer	Died, ?	42d
75	2d	Gangrene	Died, gangrene	9th
14	....	No gangrene	Died, infection	17th
42	2d	Gangrene	Died, gangrene	9th
91	....	No gangrene	Died, ?	3d
77	5th	Gangrene	Killed	8th
100	3d	Gangrene	Died, gangrene	3d
16	24th	Gangrene	Died, ?	71st
67	....	No gangrene	Condition good	36th
80	2d	Gangrene	Died, gangrene	3d

SUMMARY

No. of Animals	With Gangrene		Without Gangrene		Animals Alive after 10th Day	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
21	15	71.5	6	28.5	10	47.5

COMMENT

From these experiments, therefore, it is evident that gangrene following arterial obstruction is dependent on some other factor than the amount of blood flowing through the vessels distal to the obstruction; for, if the primary artery of the extremity was occluded, the amount of blood flowing through the extremity was decreased, and if the primary vein and the artery were obstructed, the volume flow was further decreased, but gangrene was less frequent. The statement that gangrene is less frequent after simultaneous ligature of the vein because this procedure results in a retention of blood in the tissues is not an adequate explanation, for tissues require not blood but an exchange of certain substances from blood to the tissues. Tissues require circulation of fluids, not stagnation; movement rather than mass.

It was at one time thought that the simultaneous occlusion of the vein might bring about a wider distribution of the smaller quantity of blood. It seemed possible that, after obstruction of the common iliac artery, the blood reaching the thigh through the collateral circulation might pass through the capillary bed of the thigh and return through the veins of the thigh without reaching the foot, and that occlusion of the common iliac vein might prevent this easy return and thereby force a circulation through the vessels of the leg and foot. The experiments, however, in which the temperature of the tissues was measured was contradictory to this theory. These experiments demonstrated that after venous occlusion the temperature of both the foot and the thigh was decreased by occlusion of the vein. This indicated that the volume flow of blood was decreased in both the proximal and the distal portions of the extremity.

It is possible, however, that the distribution of blood in respect to small areas of tissue may be changed by simultaneous ligature of the vein. The temperature of tissue is determined by the temperature of adjacent tissues, and a small area of tissue with no circulation of blood would not differ in an appreciable amount from the temperature of adjacent tissue with a circulation adequate to maintain life. The distribution of circulation as regards small areas of tissue is a matter of blood pressure rather than of volume flow. If the intravascular pressure on both the arterial and the venous side of the capillary circulation is very low, it is probable that the blood filters through only those communicating channels that remain open on account of the rigidity of their own walls. Capillaries that do not remain open from the rigidity of their own walls collapse, and no blood flows through them. This would result in some areas of tissue receiving no nutrition. Simultaneous ligature of the vein would result in a greater intravascular pressure in all the capillaries. This would help to prevent collapse of the vessels in any particular area, and thus result in a more homogeneous distribution of blood.

Another beneficial influence of increased intravascular pressure is to be considered. It is possible that intravascular pressure below a certain level is not compatible with the exchange of nutrient substances from within the vessels to the tissues. If the artery alone is obstructed, the intravascular pressure may fall below this level at which tissues may acquire adequate nutrition. Simultaneous ligature of the vein may increase the intravascular pressure so that even though it diminishes the amount of blood flowing through the vessels, it may make it possible that the tissue exchange is adequate for preserving life.

TABLE 3.—*Ligation of the Right Common and External Iliac Arteries and the Right Common Iliac Vein*

Number	Day of Occurrence of Gangrene	Condition of Leg	Condition of Animal	Day after Operation
4	....	No gangrene	Died, abdominal abscess	10th
55	....	No gangrene	Died, ?	4th
95	....	No gangrene	Killed	63d
12	....	No gangrene	Died, ?	8th
82	2d	Gangrene	Died, gangrene	4th
88	8th	Gangrene	Died, gangrene	11th
49	....	No gangrene	Good condition	50th
45	7th	Gangrene	Killed	9th
21	....	No gangrene	Good condition	55th
55	....	No gangrene	Good condition	73d
72	....	No gangrene	Died, ?	17th
50	....	No gangrene	Good condition	60th
76	....	No gangrene	Died, ?	43d
94	....	No gangrene	Killed	68th
89	....	No gangrene	Killed	60th
92	31st	Gangrene	Died, ?	53d
22	2d	Gangrene	Died, gangrene	5th
93	2d	Gangrene	Spontaneous amputation, died	56th

SUMMARY

No. of Animals	With Gangrene		Without Gangrene		Animals Alive after 10th Day	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
18	6	33.3	12	66.6	17	76.5

The relation of the results of the experiments described in this paper to the results of some previous experiments reported by one of us[6] should be mentioned. In the previous experiments it was found that complete occlusion of the vein of a muscle which had been isolated from all vascular connections except a single artery and vein led to the development in the muscle of a marked inflammatory process and the transformation of the muscle into fibrous tissue. This change did not follow the occlusion of the artery alone or occlusion of both the vein and artery. It was believed that the pathologic process in the muscle which followed complete venous stasis was the result of raising the intracapillary pressure to the point of completely disrupting the entire capillary bed. In the discussion of these experiments, it was stated that gangrene was more likely to follow arterial obstruction if there was an existing venous obstruction. This statement was based on some experiments in which a much more complete venous obstruction was produced than in the experiments described in this paper. In these previous experiments it was found that, if one common iliac vein of a dog was ligated and the distal stump of the vein injected with barium sulphate paste sufficient to cause an extensive venous thrombosis, and that this procedure was followed by persistent edema of the extremity, then occlusion of the abdominal aorta led to gangrene only of the extremity with the venous occlusion.

It would therefore seem true that if an arterial obstruction exists, simultaneous occlusion of the vein brings about two distinct changes in the circulation, distal to the obstruction, one of which may be beneficial and the other harmful. The magnitude of these changes is determined by the degree of venous obstruction of the entire extremity. The more complete the venous obstruction, the more nearly the intravascular blood pressure is raised to that in the artery proximal to the arterial obstruction. But the more complete the venous obstruction, the more nearly the volume flow of blood is diminished to nothing. Ligature of the vein accompanying the obstructed artery results in only a relative venous obstruction, since the collateral veins are not obstructed. The degree of venous obstruction that would follow ligation of a single vein would certainly vary widely in different veins and, no doubt, in the same vein in different individuals. The ligation, then, of a vein or veins would be beneficial or harmful accordingly as the venous obstruction produced would cause to predominate the beneficial effect of elevation of the intravascular pressure or the harmful effect of the decrease in volume flow of blood.

This discussion has referred only to the immediate consequences of arterial obstruction with and without simultaneous venous obstruction. The late results must also be considered. It is possible that simultaneous ligature of the vein might decrease the frequency of gangrene and yet produce a condition of chronic venous stasis that would make this procedure inadvisable. In other words, the saving of the extremity from gangrene would be accomplished by the risk of the establishment of a condition more intolerable than the effects of the gangrene avoided. In the experiments described in this paper, all animals that did not develop gangrene or die from some other cause recovered completely, and there was no difference noted in the function of the extremities of the animals in which the common iliac vein had been occluded. In fact, it has been found experimentally impossible to produce edema by ligating all of the larger veins of an extremity.

A complete discussion of the possible clinical applications of the results of the conclusions from this experimental study would, of necessity, include an extensive review of a large number of different varieties of arterial obstruction. It may be briefly stated, however, that intentional venous occlusion would benefit those conditions in which arterial obstruction leads to low intra-arterial pressure and a volume flow which is in excess of that necessary to maintain viability of the tissues. The same procedure would be harmful in any condition in which the volume flow was decreased to an amount insufficient to maintain adequate nutrition. The former condition would undoubtedly most often be found after a sudden localized occlusion of an artery such as would result from ligation. Also, ligation of a vein would certainly be expected more likely to be beneficial in a condition in which the arterial circulation is seriously obstructed for a relatively short time, and relatively rapidly improves by the establishment of a collateral circulation.

The advisability of ligating any vein for improvement of the circulation of an extremity would also be determined by the relative amount of venous stasis which would be expected to follow. If there is no existing venous stasis, it is probable that ligature of only the vein accompanying the occluded artery would result in merely a relatively small amount of venous stasis and would be beneficial. If, however, there was evidence of obstruction in the collateral veins, it would be inadvisable. In other words, if there is no evidence of any venous obstruction existing and an artery is to be occluded, it would seem best to occlude the vein also; and if there is evidence of an existing venous obstruction at the time at which the artery is occluded, then further venous obstruction would probably be harmful.

The idea of the ill effect of a lack of a certain balance between the arterial and venous circulations is well expressed by Halsted in a discussion of arteriovenous fistula. He writes:

> We are compelled, I believe, to subscribe to the view that some degree of equilibrium of the arterial and venous systems must be maintained. Granting this, there vanishes any difficulty that there may have been in accounting for the very high percentages of gangrene observed to follow ligation of the artery in cases of arteriovenous fistula. There is in these cases not only a great enlargement of the venous bed but also a curtailment of the arterial tubage—a shrinkage or hypoplasia of the arteries distal to the fistula. Thus, even before the artery is ligated the limb is handicapped by this lack of balance. When, now, the artery above a fistula is tied, irrigation with arterial blood is suppressed on one side of the capillary bed; and on the other side of it the mixed blood is deprived of a share of the pressure by virtue of which the life of the limb was partly sustained. It seems permissible to conjecture that in some instances the limb distal to the fistula may have been hardly less dependent on the pressure from the venous than from the arterial side, and if so we can more readily comprehend the ensuing gangrene than the frequent absence of it after ligation of the fistulated artery.

6. Brooks, Barney: Pathologic Changes in Muscle as a Result of Disturbances of Circulation: An Experimental Study of Volkmann's Ischemic Paralysis, Arch. Surg. 5: 188 (July) 1922.

Incontrovertible Evidence.—Finding tubercle bacilli in material from human sources, excluding the possibility of contamination from outside, is the one incontrovertible piece of evidence establishing a diagnosis of tuberculosis. Many cases, though without question clinically tuberculosis, fail to reveal the bacillus—Freed and Black: *Am. Rev. Tuberc.*, May, 1923.

THE NEED FOR POSTMORTEM EXAMINATIONS AND METHODS OF SECURING THEM *

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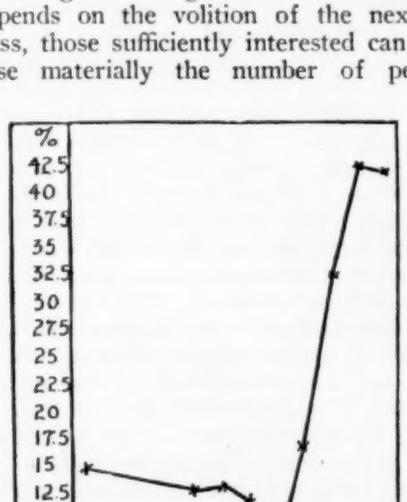
The value of postmortem examinations, both as a means of advancing our knowledge of disease and as a necessary step in the complete study of a case, is widely recognized even in these antimorphologic days when the study of function is put at such a premium over the study of structure. What a common occurrence it is for a medical man of any hospital experience to lose the fruits of a most painstaking and alluring clinical study by the inability to secure from an ignorant or misguided relative the necessary necropsy permission. While this state of affairs is bound more or less to continue as long as the right to make such an examination depends on the volition of the next of kin, nevertheless, those sufficiently interested can do much to increase materially the number of permissions



Necropsy percentages, Philadelphia General Hospital

granted. The high necropsy percentages secured at the Mayo Clinic (95 per cent. in 1915) and at the Johns Hopkins Hospital are too well known to require further comment; but it is just as well recognized that such high figures can be approached or maintained only by unremitting effort, and at best they cannot hope to be equaled in the larger general hospitals. In fact, one of the best and largest hospitals in the country has recently pointed with satisfaction to the fact that it has raised its necropsy percentage from 8 to 12.

Dr. J. C. Doane,[1] medical director of the Philadelphia General Hospital, in discussing recently the questionable value of present-day civilian mortality statistics, mentioned the relatively high percentage of necropsies that was being secured in this hospital. As we have had since then numerous requests for more information as to how this improvement was obtained, I am here considering the methods which have produced results, in which, for a general hospital, I think we may take pardonable pride.

Broadly, it might be said that every avenue of approach to the securing of necropsies is cultivated assiduously by the medical director and his staff, and that the curve of necropsy percentage is very sensitive to laxity in any particular.

The interns are impressed at every opportunity with the importance of securing necropsy permissions, and a monthly tabulated record is published, through the hospital, of each individual's results. (Tables arranged according to chiefs and services are also exhibited). It is understood that success in this field is an important item in determining the intern's standing for certification. It is well known that the number of necropsy permissions secured can be greatly increased by the sympathetic handling of relatives at an opportune moment, and preliminary training in how to approach the matter is given the new intern on more than one occasion. The chief objections on the part of the family are nearly always sentimental—natural, to be sure—but usually not insuperable if the reasons for the request are put in a sufficiently tactful and convincing manner. There are many valid, powerful arguments, well known in hospital circles, that may be used, and special ones for the individual case must be readily forthcoming. Euphemism in terms must be carefully followed by the young medical officer, prone to forget how the opposite grates on bereaved relatives. Objections on religious grounds are made chiefly by Jews, but I have been told more than once, by rabbis well versed in Hebrew laws, that such objections are based only on customs. Mount Sinai Hospital in New York, for instance, with mostly Jewish patients, has attained an enviable necropsy record of 56 per cent.[2]

I understand that, in Pennsylvania, at least, legal opinion has been given that, as the law compels the physician to give a certificate of the cause of death, in the absence of any law to the contrary it presupposes that the physician has the right to take necessary measures to ascertain such cause. Acting on this opinion, therefore, the superintendent, under proper authority, may authorize an examination, if the medical attendant has stated that he cannot certify the cause of death. If safeguarded against abuse, this method may occasionally be resorted to and has, in fact, in one hospital that I know of, proved to be a valuable help in just the type of case in which necropsy is apt to be most needed. It has also been found that a proper explanation by the ambulance intern at the time the patient is being brought to the hospital is very productive of the necessary signature, and if only a partial necropsy can be obtained, this is much better than none at all. The intern in charge of the patient at the time of death, is, of course, notified of the time of necropsy, and is given a copy of the "front sheet" of the necropsy record for his own information and record within forty-eight hours of the performance of the necropsy. If it has been a particularly interesting case, he will be asked to present the clinical side at the weekly clinicopathologic conference. He knows that his turn will come during his laboratory service to perform twenty or thirty necropsies, at which time particular attention is paid by the pathologist in charge to the instruction of the intern in pathologic technic.

The interest of the "chief" is important and constantly sought. A word from an older physician, or perhaps a note from him, to the intern emphasizing the need for a postmortem examination is often enough to turn the tide in the mind of the partly convinced

* From the Laboratory of Postmortem Pathology of the Philadelphia General Hospital.

1. Doane, J. C.: The Questionable Value of Present-Day Mortality Statistics, J. A. M. A. 79: 1868 (Nov. 25) 1922.

2. Bluestone, E. M.: Mod. Hosp. 18: 423 (May) 1922.

but undecided relative. The "chief" also receives a copy of the "front sheet" of the necropsy record, the full record being available later, either in the laboratories or bound with the history in the hospital record room. The necropsy percentages, tabulated according to the individual "chief's" record, are posted each month, and usually good or bad records are not infrequently commented on by personal communications.

One of the most important items in raising necropsy percentages we have found to consist in increasing cooperation with the undertakers. Under the conditions existing in a large hospital, a hostile undertaker, seeing the family shortly after the patient's death, can easily prevent a permission or get one revoked that has already been granted; whereas we have now found more than once that our efforts have been aided by a broadminded and sympathetic undertaker. This cooperation has been secured in a number of ways. Students in the local school of embalming are invited to the necropsy room to see how carefully and respectfully a necropsy is performed, the amount of work entailed and the uses made of the findings. Conferences are held with the officers of undertakers' associations, or an occasional talk is given at an undertakers' meeting, to promote better mutual understanding and to clear away unnecessary points of conflict. We have constantly found that the better grade of men in charge of these organizations are not only willing to cooperate themselves, but also anxious to bring the more poorly equipped members of their profession into line.

In the necropsy room, our pathologists and morgue officers are urged to take every precaution that no unnecessary extra trouble is caused the undertaker through the performance of a necropsy and that proper respect for the dead is exhibited. Thus unusual incisions are limited to the necessity of the case; if the aorta is entirely removed, string is attached to the carotid stump so that it can easily be secured when retracted into the neck; if the brain is removed, the cavity is filled with plaster of Paris and the skull cap securely attached to prevent future displacement and embarrassment, and so on with many details, which, if not observed, may cause considerable trouble and bad feeling.

A special room is maintained, in which the undertaker may embalm the body if so desired, even before the postmortem incision has been sewed up, and we hope soon to have a set of embalming instruments and some fluid for special cases. In the rare event of a contagious disease, an altar and benches provide a makeshift chapel for a religious service.

Finally, in special cases, we may advance the time of performance of necropsy to suit the family or undertaker, and we strive particularly to live up to any arrangement made. If, for instance, a body is promised at a certain hour, we always are sure to have it ready at that time, instead of keeping the undertaker waiting perhaps two or three hours, as is sometimes unfortunately the case in other hospitals. By such means, we have found that the mental eyes of the undertaker and the family will usually respond either to light or in accommodation (to pharaphrase Dr. Bluestone's remark), and surely it is worth the while of the hospital and laboratory staff to utilize such simple methods as here described if they can succeed in raising the voluntary permissions in a general hospital, as they have here, from 10 to 51.3 per cent. (September, 1922).

Thirty-Fourth and Pine streets.

CARDIAC DISORDERS ACCOMPANYING EXOPHTHALMIC GOITER

SOME FACTORS IN THEIR PATHOGENESIS *

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Many theories have been suggested to explain the development of the cardiac disorders that so frequently accompany exophthalmic goiter, but none of them are adequate. The most generally accepted belief is that toxic substances, which are related to the increased activity of the thyroid gland acting through the cardiac nerves or directly on the myocardium, are responsible for the tachycardia and the heart lesions that develop. Support for this view has been sought from the pathologic findings.

At necropsy, the heart in exophthalmic goiter usually exhibits moderate hypertrophy and dilatation of both chambers, with fatty infiltration of the heart muscle cells. In some cases, small scars with interstitial or perivascular round cell infiltration are found scattered through the heart muscle. These, however, may be found as well in the hearts of patients with simple goiter.[1] Several observers have experimentally produced similar lesions by feeding desiccated thyroid to animals.[2] Recently, Goodpasture[3] described two cases of exophthalmic goiter in which there was extensive myocardial necrosis, unaccompanied by inflammatory reaction or by coronary artery disease. He pointed out, however, that this is an uncommon finding.

Chiari[4] has emphasized the fact that constitutional cardiovascular anomalies, such as the dropped heart and narrow fragile arteries, as well as vasomotor instability, frequently determine the intensity of the cardiac symptoms in exophthalmic goiter. He recalls that functional heart symptoms may precede the onset of exophthalmic goiter and may continue after the disease has become arrested.

I wish to call attention to two additional factors which have not, to my knowledge, received proper emphasis. In exophthalmic goiter, as in the early stages of simple goiter, there is a tremendous increase in the vascularity of the thyroid gland. The thyroid arteries and veins are greatly dilated; indeed, the vascular dilatation often includes the carotid arteries and the large neck veins. It has been shown that the maximum blood flow through the normal thyroid gland is 100 c.c. per minute, and that in the gland of exophthalmic goiter it ranges from 500 to 1,000 c.c. per minute. Clinical evidence of this increased blood supply is found in the pulsation of the gland, as well as in the palpable bruit and in the dilated thyroid veins found at operation. The dilated blood vessels of the thyroid gland act as a shunt which short circuits a large part of the blood from its usual course to the head and brain and returns it immediately to the heart. To maintain an adequate circulation, a larger amount of blood must be thrown into the carotid arteries per unit of time, thus entailing

* From the Medical Division of Montefiore Hospital for Chronic Diseases.

1. Fahr, T., and Kuhle, J.: Zur Frage des Kropfherzens und der Herzveränderung bei Status thymicolymphaticus, Virchows Arch. f. path. Anat. **233**: 286, 1921.
2. Hashimoto, H.: The Heart in Experimental Hyperthyroidism, with Special Reference to Its Histology, Endocrinology **5**: 579 (Sept.) 1921.
3. Goodpasture, E. W.: Influence of Thyroid Products on Production of Myocardial Necrosis, J. Exper. Med. **34**: 407 (Oct.) 1921.
4. Chiari, R.: Sind alle bei Morbus Basedowii vorhandenen Herz und Gefässerscheinungen Basedowsymptome? Ztschr. f. ang. Anat. u. Konstit. **1**: 280, 1913-1914.

an increased minute volume output from the heart. There is no evidence that the increased blood supply to the thyroid is compensated for by a lessened supply to other organs. This persistently increased load on the heart must result in dilatation and hypertrophy, and, if long continued, in myocardial insufficiency. Marine and Lenhart [5] have suggested that the goiter heart is primarily the result of a work hypertrophy.

The mechanism seems analogous to that determining the hypertrophy and dilatation of the heart observed in arteriovenous aneurysms, in which, too, a short circuit is interpolated in the circulation.[6] Another analogy between the two conditions is the high systolic and low diastolic pressure that is found in patients with exophthalmic goiter, as well as in those with arteriovenous aneurysms. The resultant high pulse pressure suggests an increased systolic output of the heart.

The increased basal metabolism so constantly observed in the active phase of exophthalmic goiter, and particularly the close correlation between the pulse rate and basal metabolism, point to another factor that must affect the heart. With the heightened metabolism, there is a greater consumption of oxygen and an increased elimination of carbon dioxid by the tissues. Since there is no change in the hemoglobin or red cell content of the blood in exophthalmic goiter, this necessitates an increased minute volume flow of blood through the tissues. This may be attained by an increased systolic output of the ventricles or by an accelerated heart rate, or by both. This increased load, continuous twenty-four hours every day for months at a time, must place a great strain on the heart and result in cardiac dilatation and hypertrophy, as well as greater susceptibility to other noxious factors that may exist during the disease.

In order to obtain some quantitative concept of the increased work thrown on the heart, the oxygen consumption was studied in fifty-five unselected patients who had been referred to the laboratory division of Montefiore Hospital for the determination of their basal metabolic rate. I am indebted to Dr. Marine for placing the records at my disposal. Of the fifty-five patients, twenty-three exhibited a basal metabolism above + 10, three, a rate below — 10, and twenty-nine, a rate between — 10 and + 10. The patients with high rates all suffered from exophthalmic goiter. In all, 102 estimations were available on these fifty-five patients. In each case, the oxygen consumption per minute, corrected for temperature, barometric pressure and tension of water vapor, the metabolic rate, the pulse rate and the weight of the patient were noted.

The oxygen consumption varies with the size of the patient, and the readiness with which it is transported from the lungs to the tissues depends on the blood volume circulating in a unit of time, provided the oxygen-carrying power of the blood and the rate of oxygen absorption by the tissues are constant. Since the total volume of blood in the body is a function of the body weight (approximately 7.5 per cent.), the oxygen consumption was calculated in cubic centimeters per kilogram for each subject in order to make the figures comparable. In fifty-seven readings in which the metabolism ranged from + 12 to + 80 (average + 41), the average oxygen consumption was 5.1 c.c. per kilogram of body weight per minute. In thirty-one cases in which the metabolism ranged from + 10 to — 10 (average 0), the average oxygen consumption was 3.8 c.c. per kilogram of body weight per minute. Assuming that the blood volume in these subjects varies with the body weight, the patients with exophthalmic goiter had to transport one quarter again as much oxygen from the lungs to the tissues by means of the same amount of blood as the normal controls. The chief means of accomplishing this is by a circulation rate which is one quarter again as rapid as the rate in normal persons.

Theoretically, a greater abstraction of oxygen from the blood by the tissues, in other words, a greater oxygen unsaturation of the venous blood, might compensate for the increased tissue demand for oxygen. Lundsgaard [7] has shown that a retarded blood flow through the capillaries as well as bodily exercise will cause an abnormally great reduction of oxygen saturation in the capillary blood. Although this may play a small part, Plesch [8] has definitely proved that there is an increased minute volume flow in exophthalmic goiter. Indeed, in the cases which he studied, the figures correspond rather closely to mine. The patients with exophthalmic goiter consumed, on the average, 6.47 c.c. of oxygen per kilogram per minute, while the controls consumed 3.52 c.c. per kilogram per minute. He further found that the minute volume flow per kilogram in the patients with exophthalmic goiter was 97.43 c.c., while in the normal persons it was 61.62 c.c. per kilogram. Further investigation revealed that the systolic output per beat was not increased in exophthalmic goiter, and that, therefore, the greater minute volume was due to the rapid heart beat accompanied by little reduction in the systolic output per beat. Studying his material from a different angle, he showed that although the heart work per beat is not increased in exophthalmic goiter, the work per minute is considerably greater because of the factors discussed above.

SUMMARY

The current theories of the cause of the cardiac disorders that accompany exophthalmic goiter are inadequate. Evidence is presented that two mechanical factors may play a part in overloading the heart in exophthalmic goiter, thus making it more susceptible to secondary noxious influences. 1. The tremendous dilatation of the arteries and veins of the thyroid short-circuit the blood flowing to the neck and increase the load on the heart in the same manner as do arteriovenous aneurysms. 2. The heightened oxygen consumption causes an increased minute volume flow of the blood, which may be from 25 to 60 per cent. greater than normal.

The increased work thus thrown on the heart is the chief cause for cardiac dilatation, hypertrophy, and insufficiency in exophthalmic goiter.

5. Marine, David, and Lenhart, C. H.: Pathological Anatomy of Exophthalmic Goiter, Arch. Int. Med. **8**: 265 (Sept.) 1911.

6. Reid, M. R.: The Effect of Arteriovenous Fistula upon the Heart and Blood Vessels, Bull. Johns Hopkins Hosp. **31**: 43 (Feb.) 1920. Cazamian, P.: Le retentissemente cardiaque et circulatoire d'un anévrysme arteriovéneux d'origine traumatique des vaisseaux fémoraux profonds, Bull. et mém. Soc. méd. d. Hôp. de Paris **41**: 46, 1917.

7. Lundsgaard, C.: Studies in Cyanosis, J. Exper. Med. **30**: 271 (Sept.) 1919.

8. Plesch, J.: Haemodynamische Studien, Ztschr. f. exper. Path. u. Therap. **6**: 395, 1909.

Vitamins as Important Factor in Treatment of Pulmonary Tuberculosis.—F. Gardey remarks that many symptoms of pulmonary tuberculosis resemble those of deficiency diseases. He pleads to have the dietary in different countries investigated in relation to the prevalence of pulmonary tuberculosis and the influence of food, with and without vitamins, on the course of the disease. The organism of the tuberculous acts as if it were void of vitamins.—*Semana Médica* **27**: 759, 1920.

PROTEIN AND PELLAGRA

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I have followed the discussion on pellagra and its causes in the American scientific periodicals with great interest. Here I shall simply discuss the question: Is the cause of pellagra the lack of animal food? Goldberger and Tanner,[1] from their observations, conclude that "the dominating rôle of diet in the prevention and causation of pellagra must be referred primarily to the character of the protein (animo-acid) supply, this being the only other dietary factor at present known to be necessary to physiological well-being."

Is this conclusion correct? In my opinion, it is not. While I have not experimented with pellagra, the question of protein has been, in a way, my specialty. I was born and brought up in the country among farmers in the western part of Jutland. In my childhood—fifty years ago—the food consisted chiefly of bread, porridge, potatoes and milk, to which was added a little fat corned pork and dried fish. Fresh meat was for the most part known only during the butchering season. On this diet my countrymen were healthy and able-bodied. We did not know anything of the now so fashionable neurasthenia. To be sure, the working hours numbered eight, but they were eight hours in the morning and eight hours in the afternoon.

I came to Copenhagen in my sixteenth year and turned to the ordinary town food. But my health diminished on this food. My interest in the question of nourishment was roused. I experimented on myself, and, later, on my whole family. The Danish state, in 1910, on account of the Danish farmers, gave me a laboratory and three assistants, since which time I have devoted myself to the study of diet. When the war and the blockade came, as a result of which Denmark was cut off from more than half her supply of nourishment, I exerted a substantial influence on our scheme of rationing, which was founded on the new nourishment theories.

While others experiment with rats, rabbits and pigs, I experiment with men. I insist on a supply of the best experimental subjects in the world. It is well known that when the officers go at the head, the soldiers follow them. My soldiers have walked a long distance in front of me. My assistant, Frederik Madsen, lived (1) for one year on potatoes and margarin;[2] (2) for six months on whole rye-bread, margarin, prunes, sugar and starch;[3] (3) for six months on barley-meal porridge made with water, margarin and sugar,[4] and (4) for two years on bread, potatoes, cabbage soup and fruit soup without fat.[5] The object was to find the protein minimum and the fat minimum. Madsen was not the only test subject. I have always had at least two on the same experiment, and the results were always exactly the same.

THE PROTEIN AND THE FAT MINIMUM

By Experiment 1 we found that the protein minimum for a grown-up strong man is about 20 gm. of digestible potato protein.[2] The test subjects found that this diet agreed very well with them. But a condition is that the water in which the potatoes are boiled and which contains important substances (salt and vitamins) be ingested as well. Therefore, the potatoes ought to be peeled before they are boiled, out of regard to cleanliness. The experiments were later controlled by Abderhalden and other physiologists. The result was the same.

By Experiment 2 we found that the protein minimum by bread diet is about 20 gm.[3] In other words, protein in potatoes, bread, meat and milk has the same biologic value.

By Experiment 3 we found that barley groats form an excellent article of food, which, unlike polished rice and sieved oatmeal, contains sufficient vitamins. This agrees with several practical experiences. In the old days in Denmark, barley-meal porridge was eaten two or three times a day in the country.

By Experiment 4 we found that fat is not necessary. Vegetables can replace it.[6]

Our second experiment, on bread, opposes, it is true, the results of other investigators. Thomas found that bread protein has only one-third the value of meat protein. But his experiments were of too short a duration. While my experiments extended over six months, he contented himself with three days. In addition, Thomas seems rather biased. I once critically examined the experiments. I ended by declaring:[3]

> The fact is that Thomas, by selecting all the big figures for the nitrogen secretion in the urine, in the bread experiments, while he selected all the small and rejected all the big figures in the meat experiments, succeeded in reducing the value of the bread protein to one-third that of the meat protein. Is such a method scientifically allowable? If Thomas had acted conversely and chosen the small figures for bread and the big for meat, he might just as well have found the value of bread protein to be two or three times that of meat.

It is undoubtedly true that some proteins in cereals lack certain amino-acids. But when we eat bread, we do not isolate the single protein. The aggregated sum of proteins in corn has full value. Even the two men who especially have isolated and experimented with the deficient proteins say so. I will quote:[7]

> Hence a misconception of the possible value of the cereals as sources of protein has developed in the minds of some persons owing to their failure to realize that, in the form in which these grains are most commonly fed, the sum total of their various proteins must be taken into account.

The same men, to their surprise, have found that bran contains not only the vitamins, which the endosperm lacks, but also protein substances that supplement the deficiencies in the proteins of the endosperm. They write:[8]

> The "crude protein" of bran appears to be quite as efficient as that of the combination of wheat flour with egg, milk or meat, under the condition of this experiment.

The bran can replace meat and milk. In other words, it is one of our most valuable articles of nourishment. It has certainly been believed that bran is

1. Goldberger, Joseph; and Tanner, W. F.: Pub. Health Rep. **37**: 462 (March 3) 1922.
2. Hindhede, M.: Skand. Arch. f. Physiol. **30**: 97.
3. Hindhede, M.: Skand. Arch. f. Physiol. **31**: 259.
4. Hindhede, M.: Skand. Arch. f. Physiol. **35**: 294.
5. Hindhede, M.: Skand. Arch. f. Physiol. **39**: 78.
6. In 1918 I wrote to Prof. Lafayette B. Mendel, New Haven, Conn.: "Two men have now lived one and one-half years without fat. No sign at all of any hurt. It would be of interest if you would try whether vegetables can replace fat." Eleven months later Mendel published researches showing that spinach, alfalfa, etc., really can replace fat (Mendel, L. B.: Vitamines in Green Foods, J. Biol. Chem. **37**: 187 [Jan.] 1919).
7. Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **41**: 275 (March) 1920.
8. Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **37**: 557 (April) 1919.

indigestible for man, but our thorough experiments have—to our own surprise—shown us that man, as well as the domestic animals, can digest bran. The correctness of these results has been confirmed by Johansson [10] in Stockholm and Wiegner in Zürich.[11] The Danish war rationing was largely based on the value of the bran. Therefore I do not deny the possibility that pellagra is due to the absence of protein; but in that case it is not necessary to take to animal protein. The compensation is much nearer. However, I am most inclined to think that the question of pellagra is not a question of protein but of vitamin.

TABLE 1.—*Food Consumption in South Carolina, 1916* *

	Nonpellagrous		Pellagrous	
	Highest Intake	Lowest Intake	Lowest Intake	Two or More Cases
Group 1:				
Bread, flour, grits, sugar, syrup, jams	669	647	546	675
Lard, salt pork fat	92	88	102	100
Group 2:				
Butter	27	30	16	11
Group 3:				
Meat	128	42	38	40
Eggs	70	39	31	31
Milk	379	554	187	127
Group 4:				
Fruits	90	45	36	36
Vegetables	239	112	98	124
CONTENT OF PROTEIN AND CALORIES				
Protein in all groups	128	105	84	85
Animal protein	50	35	24	21
Calories	4,267	3,836	3,288	3,310

* In Tables 1, 2 and 3, the figures represent grams for each adult male, daily.

In Table 1, I give some of Goldberger's [12] results.

I have collected the articles of food into four groups, according to the content of vitamins. Group 1 is practically free from vitamins; Group 2 contains vitamin A; Group 3 represents vitamins from the animal kingdom and Group 4 from the vegetable kingdom. Group 1 contains only imperfect nourishment (chemically pure substances or artificial products; in bread and flour the bran is lacking). But this group represents, for the pellagrous families, under Group 4 2,800 of the 3,310 calories, and consequently more than 90 per cent. of the nourishment. When nine tenths of the food consists of such defective articles of food, is it surprising that illness increases? We have often tried to live on white bread and butter as the main source of sustenance, but we soon became listless and ill. When one considers that the greater part of the meat and half of the fruits and vegetables were not fresh, but salted, dried or preserved, one might—with present knowledge—predict that such a diet would not work in the long run.

In fact, there is only a slight difference in the food in Groups 2, 3 and 4. Therefore the families are either just on or under the border. It is likely that it is the large milk consumption that saves Group 2, but the same result would probably have been reached—and virtually is reached—by the addition of more fresh fruit and vegetables. A factor that speaks decidedly for the part of the vitamins is the seasonal appearance. Goldberger's [13] figures are: January, 0; February, 1; March, 4; April, 13; May, 20; June, 37; July, 18; August, 8; September, 10; October, 3; November, 1; December, 0.

According to this, pellagra rises in the springtime, when there are virtually no fresh vegetables, and decreases in the course of the summer, when there are plenty of vegetables and fruits available. But Goldberger's investigations are made only in periods of fifteen days in April and May, and consequently at a time when the food is most deficient. Why have investigations not been made in July and August, when the food evidently is satisfactory? Investigations at this time would probably have readily unearthed the cause. Is it probable that people in the hot summer use more meat and milk? Hardly. But it is likely that they use more vegetables.

EXPERIMENTS AT EDEN

I will report some of the results of our experiments in the garden settlement Eden, at Oranienburg, 20 miles north of Berlin. About 100 families, twenty-eight years ago, bought a piece of land, which they parceled out in lots of two-thirds acre. Each family has one or more lots. These people are nearly all vegetarians. The slogan is: Away from the towns, away from culture, back to nature; live in fresh air and sunshine, and support yourself as much as possible by the products of your own garden. Throughout the war they had sufficient nourishment. The state of health was perfect. The mortality of children under 1 year of age is only one fourth in proportion to that of the neighboring villages, and in the twenty-eight years not one school child has died.[14] I have followed this colony for a number of years and have made a series of investigations concerning which a more extensive report will soon be published. The composition of the food is given in Table 2.

If the theory of the necessity of plentiful animal protein were right, it would look bad for these Eden families, with absence of meat and insignificant consumption of eggs. Several families use hardly even milk. Families 9 and 10, who have a scientific understanding of the problem of nourishment, use the smallest quantity of animal products. Family 10 consists of husband, wife and four grown-up children, who are all uncommonly healthy.

TABLE 2.—*Food Consumption in Eden, 1921*

	Families*										Average
	1	2	3	4	5	6	7	8	9	10	
Group 1:											
Bread, flour, grits, sugar, jams	342	557	550	406	464	480	665	364	613	370	481
Margarin	51	48	34	45	53	50	63	29	75	3	45
Group 2:											
Butter	4	..	..	..	..	..	..	..	..	..	04
Group 3:											
Meat, eggs	5	8	1	..	14	1	12	5	..	..	5
Milk, cheese	321	158	479	229	65	153	318	232	19	23	200
Group 4:											
Fruits	1,354	658	1,908	899	708	613	1,502	618	821	1,605	1,071
Vegetables	285	102	207	199	173	367	302	438	61	380	251
Potatoes	665	360	771	346	669	582	686	777	1,067	911	686
CONTENT OF PROTEIN AND CALORIES											
Protein in all groups	64	63	63	56	66	59	81	59	80	58	65
Animal protein	11	7	15	9	4	6	11	9	5	1	9
Calories in all	2,945	2,871	3,917	2,591	2,881	2,910	3,998	2,710	4,296	2,769	3,189

* 1, teacher; 2, rector; 3, artist; 4, judge, retired; 5, musician; 6, director; 7, gardener; 8, engineer; 9, physician; 10, teacher in agricultural college, retired.

The food lacks animal protein, but it does not lack vitamins. Whole bread is eaten, and there are plenty of fruits, vegetables and potatoes.

I could continue indefinitely along this line, did space permit. I shall content myself with the comparison

9. Skand. Arch. f. Physiol. **33**: 59, 263.
10. Johansson: Svenska Läk. Sällsk. Förhandl., 1917, p. 302.
11. Wiegner: Mitt. d. Gesellsch. Schweiserisch. Landwirte, 1918, No. 5.
12. Goldberger, Joseph; Wheeler, G. A., and Sydenstricker, Edgar: Pub. Health Rep. **35**: 648 (March 19), 1650 (July 9) 1920.
13. Goldberger, Wheeler and Sydenstricker (Footnote 12, second reference).
14. Eden 25 Jahre Obstbausiedlung, Oranienburg bei Berlin, 192

given in Table 3, and for further explanations refer to my books and reports.[15]

Column 1 represents two or more cases of pellagra in 1916, which, with the ten families at Eden, 1921, in Column 5, have been mentioned before. Column 2 represents six families of Danish farm laborers in 1880, at which time they had a comparatively low death rate. Column 3 represents ten families of English farm laborers in 1910 on a low income; with

TABLE 3.—*Food Consumption in Poor Families*

	1	2	3	4	5
	South Carolina,	Denmark,	England,	Germany	
	Pellagrins	Farm Laborers	Farm Laborers	Weavers	Eden
Group 1:					
Bread, flour, grits, sugar, syrup, jams	675	797	662	724	481
Margarin	...	...	8	...	45
Lard, salt pork	100	41	22	8	...
Group 2:					
Butter	11	42	5	33	0.4
Group 3:					
Meat, fish	40	...	52	20	...
Eggs	31	...	...	1	5
Milk, cheese	127	322	106	132	200
Group 4:					
Fruits	35	...	12	1	1,071
Vegetables	124	...	84	9	251
Potatoes	73	458	477	678	686
CONTENT OF PROTEIN AND CALORIES					
Protein in all	85	86	72	65	65
Animal protein	21	19	12	11	9
Calories	3,310	3,430	2,785	2,708	3,189

the exception of the clergymen, these had the lowest death rate in England. Column 4 represents twenty-eight families of Saxon weavers in 1885, who almost all grew old, and who lived as did a great part of the German population forty years ago. The people represented in Columns 2 to 5, according to the old protein theory, should be undernourished, but evidently they were not. Why? The Danish working men ate only whole rye bread. The German weavers also ate chiefly whole bread. All had a large consumption of potatoes.

SUCCESSFUL RATIONING DURING THE BLOCKADE

Our great experiment of rationing during the war blockade was instructive. The situation was critical when it began, in February, 1917, because we were accustomed to import about half of the grain and feed that we used for men and animals. Moreover, the drought in 1917 took one third of our crop. When the government requested me to be one of the two physiologic advisers, the result was that the rationing, in large part, was based on the results of our experiments. At the annual meeting of the British Medical Association in Glasgow in July, 1922, I gave a short summary,[16] from which I shall quote:

Our chief measures were:

1. All bread cereals and most of the barley and potatoes were requisitioned by the government to be used as food alone for the people.

2. As a result of this measure, the raising of pigs was reduced to one fifth. The small amount of pork which was available was eaten by the farmers. The city folk got hardly any pork.

3. The rye was ground out to 100 per cent., and thus rye bread contained all the bran. In addition to this, 12 to 15 per cent. bran of wheat was mixed into the baking of rye bread—that is to say, all the bran which was left over in making white bread was made use of in this way. Because of this the domestic animals had no bran in their feeds while the ration system was in force.

4. All production of alcoholic liquors for general consumption was prohibited. All supplies on hand were seized, and of the supply only 100,000 bottles (each containing 750 c.c.) were given out every month, which meant 25 c.c. of alcoholic drink for each person a month. In order to avoid any special fight for this dram, there was placed so high a tax on spirits that the price went up to an amount twenty times higher than was normally paid.

5. The production of brewing beer was reduced to one-half the ordinary output, and the amount of alcohol contained therein was not allowed to exceed 3 per cent.

6. In addition to these regulations, all export of fruit and vegetables was prohibited.

The main result of the rationing on the tate of health was that the death rate from all cases of death (infectious diseases excepted) in the age group 25-65 went down 34 per cent. for men and 19 per cent. for women. With regard to the men, the main cause may be looked for in the restriction of alcohol. But the great decrease, even with the women, cannot be explained in this way alone.

Most illuminating in that respect are the figures for the old people past 65. The three main causes of death are: diseases of the heart; bronchitis and bronchopneumonia, and senility. Deaths from these causes occurred as set forth in Table 4.

Owing to the fact that the death rate among women from these causes is larger than that among men, the consumption of alcohol cannot be of any essential consequence. Then what can be the cause of the conclusive and regular decrease during the rationing, and the just as punctual rise afterward? During the rationing we had less meat, less coffee and less white bread, but more potatoes, large quantities of barley-meal porridge and unusually coarse bran bread.

TABLE 4.—*Deaths per Ten Thousand from Heart Disease, Bronchitis and Bronchopneumonia, and Senility*

	1910-1914	1918	1919-1921
Men	334	255	352
Women	343	279	360
	RATIO		
Men	100	76	105
Women	100	81	105

TABLE 5.—*Food of Japanese Farmers*

	Gm.	Protein	Fat	Calories
Animal:				
Fish, eggs	19	6.1	0.9	36
Vegetable:				
Rice, bran, beans, fruits and vegetables	2,270	75.3	17.7	2,734
Total	2,289	81.4	18.6	2,770

According to what has been said about the worth of potatoes, barley greats and bran, the good results are not surprising. The rationing became a control trial on a large scale. The results of our experiments passed the test with flying colors.

BERIBERI

The pellagra situation is strikingly reminiscent of the Japanese beriberi situation thirty-eight years ago. The typical food of Japanese farmers, according to Suto's researches, is presented in Table 5. On such food, which contains only ⅓ per cent. of animal nourishment, the Japanese have lived thousands of years,

15. Hindhede, M.: Protein and Nutrition, London, Edward Seymour & Co., 1913; Die neue Ernährungslehre, Dresden, Emil Pahl, 1922; Engelske Landarbejdere (English farm laborer) 12. Beretning fra Hindhedes Kontor for Ernæringsundersøgelser, Copenhagen, 1919.

16. Hindhede, M.: Alcohol Restriction and Mortality, Brit. M. J. 2:248 (Aug. 12) 1922.

and they are extraordinarily energetic and enduring.[17] With the introduction of European culture into Japan, however, there occurred, almost at the same time, epidemics of beriberi, in which 33 per cent. of the soldiers were affected. Occidental science surmised that the cause was the rice diet, poor in protein. The European meat diet was introduced, and beriberi disappeared as if by magic.

Do you realize that it was the meat protein? science asked.

In Norway, in 1894, the opposite experiment was made. The food on board ship was improved, rye bread being exchanged for white bread, and salt pork for preserved meat. The result was many cases of beriberi, which before had been unknown. Therefore, in Japan, meat was introduced, and beriberi disappeared; in Norway, meat was introduced, and beriberi came. Accordingly, the cause cannot be the meat. People did not remember that the population in Japan exchanged rice for bread together with the meat, and introduced large quantities of potatoes and vegetables. Now everybody knows the cause of beriberi: It was the polished rice. The Americans have now—as far as I know—prohibited the import of polished rice from the Philippines. But perhaps they have not reached the point of prohibiting the use of sifted Indian meal and wheat flour in South Carolina. If they would do that and introduce whole wheat bread and give large quantities of potatoes and vegetables, then I suppose that there would not be a lack of amino-acids.

TABLE 6.—*Number of Deaths per Thousand Population, 1840-1870*

	Men			Women		
Age	Ice-land	Den-Mark	Ratio 100:	Ice-land	Den-mark	Ratio 100:
From 35 to 45	19.3	11.0	175	13.2	10.8	122
From 45 to 55	28.0	18.3	153	18.6	13.8	135
From 55 to 65	48.0	34.0	141	38.8	26.6	146

CONDITIONS IN ICELAND AND IN INDIA

It is notable to see the great agitation for more meat in Chittenden's country. McCollum has here taken the lead. His experiments with rats are very interesting, but he is a bad historian. The historical chapter in his last book seems to me to be agitation, without one strong verified proof. As he gives no dates, it is impossible to control most of his statements. But where I am able to do this, it shows that the statements run quite contrary to the reality. Concerning the nutrition of the people of Iceland, he writes:[18]

> A most interesting experience is that of the people of Iceland. The island was settled in the ninth century by colonists from Scandinavia and Ireland. The colonists took with them cattle and sheep, but no poultry. The latter were not introduced until about a century ago. Their diet was practically carnivorous in character for several hundred years. Since agriculture did not prove profitable, they subsisted on milk, mutton, fish, and in some parts of the island during the summer, eggs were added to the fare. Very little vegetable food was eaten. The health conditions on this regimen were good, and dental caries was unknown until after about 1850.

Let us examine "the good health conditions" about 1850. The figures are given in Table 6. It will be seen that health conditions in Iceland were very bad as long as people chiefly lived on animal food. On the whole, it has not been possible for me to find during my searches and studies one single class of people who lived on a strong meat fare and who had a low death rate. The low death rate is always to be found in the classes of people who live on Spartan food. One, of course, can also find a high death rate among people who live frugally, but it is always caused by unhygienic circumstances (bad housing, alcoholism, and so on).[19] The death rate in the lower class of the towns is far larger than in the upper class, but the higher death rate is due to epidemic diseases, tuberculosis and other diseases of the lungs; on the other hand, the death rate of diseases of the brain, heart and digestion is largest in the upper class.[20]

McCollum refers to McKay's studies regarding the nourishment of the different classes of people in India, from which it appears that the meat-eating races are by far the strongest. Some of McKay's investigations are the most curious I have ever seen. If one goes through his works one finds that his data prove just the opposite of what the author means them to. McKay's ideal is the meat-eating Sikhs. But what is the food of the ideally trained Sikh soldiers? According to McKay, it consists of: milk, 16 ounces daily; flour (wheat), 24 ounces daily; ghi (butter), 2 ounces daily; dhall, 4 ounces daily; vegetables (potatoes), from 4 to 6 ounces daily; meat, 16 ounces two or three times a month, and rum, 3½ ounces daily. Meat two or three times a month gives, then, the ideal food. I can subscribe to this, as it is much like my own manner of living.[21]

INFLUENCE OF TRADITION

The conclusions of Goldberger, McCollum and McKay do not seem reliable. Of course, it is not the intention of these observers to mislead. They are the victims of dogmas that have been impressed on their minds. Nobody understands this better than I. It took me a long time to break with the traditions. What caused me to lose faith in them was my experience in 1895, when I lived for a month on new potatoes, butter, strawberries and a very little milk, all of these being eaten three times a day. This food, which contained only about one fourth of the normal amount of protein, gave me an increased feeling of well-being.

No one ought to be permitted to appear as a food expert until he has experimented on himself for a long time. This is the only thing that will cause dogmas to fall. But it is not enough to try to live as a vegetarian. It will not do to eat too much food made of flour, white bread and sugar. Another point is to refrain from eating until one is really hungry, and to stop "when the food has the best taste." It should be remembered that the years between 20 and 30 are the dangerous age for tuberculosis, and that the length of life is in inverse proportion to the weight, as demonstrated by the statistics of the forty-three life insurance companies.

VARYING NEEDS OF DIFFERENT SPECIES

Although the statement may be superfluous, I am going to remark that I am not a vegetarian on principle. As a scientist I am not allowed to insist on that which I cannot prove. And although I take it as demonstrated that one can easily live on a purely vegetable diet, it can hardly be proved that a small consumption

17. Hindhede, M. (Footnote 15, first reference, pp. 38-47).
18. McCollum: The Newer Knowledge of Nutrition, Ed. 2, p. 394.
19. Eden 25 Jahre Obstbausiedlung, pp. 147-177.
20. Hindhede, M.: Protein and Nutrition, p. 110.
21. Eden 25 Jahre Obstbausiedlung, p. 85.

of meat does any harm. I consider milk a good article of food, but I do not believe it is necessary for adults. When McCollum places milk higher than vegetables as "protective food," one may be certain that he experimented with pigs and rats. Especially regarding the question of protein, I do not think it is permissible to draw conclusions from rats and pigs to men. McCollum gives the figures in Table 7 for the rate of growth.

TABLE 7.—*Rate of Growth*

	Weight at Birth	Weight at Age of 280 Days	Weight at 1 Year	Weight Doubled
Man	7 pounds	.....	21 pounds	3 times
Rat	4.83 gm.	280 gm.	.....	55 times
Pig	2 pounds	300 pounds	.....	150 times

It is a matter of course that such rapidly growing animals have a comparatively larger requirement of protein. It is also evident from the fact that the percentage of protein in the milk follows the growth rate. But he gives the figures reproduced in Table 8.

TABLE 8.—*Growth Rate, and Protein in the Milk* *

	Time for Doubling Growth, Days	Protein in Milk, per Cent.
Man	180	1.6
Ox	60	3.5
Sheep	15	4.9
Pig	14	5.2
Cat	9.5	7.0
Rabbit	6	10.4

* For rats, no figure for the protein content is given, but it may be assumed to be high.

It is always hazardous to draw conclusions from one species of animal to another. The nourishment of men requires experiments with men as a foundation.

PRODUCTION OF ADEQUATE NOURISHMENT

Physicians certainly should not agitate for a dietary rich in meat. We can leave that to the farmers and the big slaughter houses. They have some reason for fear. I once calculated that if people lived only on products of the earth—corn, potatoes, fruits and vegetables—seven grown-up men, or nine persons (men, women and children), could get nourishment enough from 1 hectare (2½ acres). From the cultivated acreage, it can be calculated [22] how many million people it would be possible to support in the different countries.

TABLE 9.—*Present Population and Possible Increase*

	Area, Hectares, Millions	Millions of Population		Number of Times Population Can Increase
		Possible	Present	
Denmark	2.5 × 9 =	22.5	3	7.5
Norway	0.64 × 9 =	5.8	2.5	2.3
Sweden	3.5 × 9 =	31.5	6	5.3
Germany	26.4 × 9 =	238	65	3.7
Austria-Hungary	26.4 × 9 =	238	52	4.6
France	28.5 × 9 =	256	40	6.4
England	8.1 × 9 =	73	46	1.6
Italy	17.8 × 9 =	160	35	4.6
Russia	123.0 × 9 =	1,107	130	8.5
All Europe	272 × 9 =	2,448	450	5.4
United States	168 × 9 =	1,512	100	15.1

When we consider how the people in the greater part of central Europe have been starving and are still starving because not enough nourishment can be produced, these figures look a bit curious. But the solution of the riddle is simple enough when it is remembered that the production of pork and milk gives a loss of nourishment of 80, and of beef even 95 per cent.[23] The central powers are starving only because the people require too many animal products. They believe in the necessity of a greater use of these products and are in that supported by the scientists. For that reason it is an irresistible necessity for Europe that the populations begin to realize that science here has committed a fatal mistake.

The experiences of Denmark during the rationing showed how easy it is to procure nourishment enough if people only limit sufficiently animal production. It would, of course, be foolish to abolish this production. What would it avail if we in Denmark produced food for twenty-two million people when we have only three million? In that case six sevenths of the food would have to be wasted, provided, of course, the other countries acted in the same way, so that nothing could be exported.

Frederiksburg Allé 28.

22. Conditions have been considered as they were before the war.

23. Report to the minister of the interior from the Committee of April 4, 1917, p. 107.

ISCHIORECTAL ABSCESS FOLLOWED BY GAS GANGRENE; GAS GANGRENE FOLLOWING TRAUMA

REPORT OF TWO CASES *

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In the five days from February 27 to March 4, 1923, there were two deaths from gas gangrene at St. John's Long Island City Hospital. The first infection was of the scrotal, perineal and ischiorectal regions and followed ischiorectal abscess; the second gas infection followed a crushing injury to the left leg. In each case the diagnosis was substantiated by bacteriologic and postmortem examination.

In the traumatic case, the patient entered the hospital three days after our first patient succumbed, and occupied an adjoining bed. Since there is no other case of gas gangrene on record in this institution, the possibility of cross-infection having occurred must be considered. And yet a review of the literature reveals a remarkable paucity of reported cases of gas gangrene in civil practice. Christopher [1] asserts that "a careful search of recent medical literature revealed only seven writers who reported nine cases of gas gangrene in civil practice." Such infrequency of occurrence is certainly inharmonious with our conception of communicability. But can the rarity of incidence be more readily reconciled with the known prevalence of the organisms responsible for gas gangrene?

REPORT OF CASES

CASE 1.—F. M., a tailor, aged 54, entered St. John's Hospital, Feb. 24, 1923, at 4 p. m., complaining of pain and swelling in the region of the anus and scrotum. The previous history was entirely negative. The bowels had always been regular. February 18, the patient first experienced a mild pain in the region of the anus. The next morning the pain increased, and the patient noticed a swelling in the perineal region. The

* From the surgical service of Dr. F. C. Keller; pathologic service of Dr. Carl Boettiger, St. John's Long Island City Hospital; operations by Dr. William Lavelle; technical assistance of Miss Mary E. Barrow.

1. Christopher, Frederick: Gas Gangrene in Civil Surgery: Report of a Case, Internat. Clin. **1**: 129, 1922.

swelling became red and extended anteriorly, reaching the scrotum, February 22. He was now unable to sit, and could not defecate because of the pain and swelling. A physician was summoned, and hot and cold water bags were applied, but without relief. He was advised to enter the hospital.

The patient was admitted to the male general surgical ward. A large, red, indurated area was noted in the ischiorectal region, extending to the left buttock. Fluctuation was present, and bulging and redness of the perineum. The scrotum was only slightly enlarged. A provisional diagnosis of ischiorectal abscess, and periurethral abscess was made.

February 25, at 9 a. m. the scrotum was the size of a coconut, was very tense and painful, and there was bluish discoloration of the skin. The veins were dilated. This had apparently occurred within the preceding fifteen hours. The mass in the left ischiorectal region and perineum was larger and more painful. At 2:15 p. m., ethyl chlorid being used locally, multiple incisions and drainage of the ischiorectal region and scrotum were performed. At that time, the scrotum was enormously swollen, was bluish in places and the veins were prominent. When the scrotum was incised, dark blood, gas bubbles and foul odor were noted.

Digital examination revealed the scrotal tissues to be thickened and crepitant, and a dark, foul smelling, bloody fluid was expressed. The operative record stated that the swelling of the scrotum seemed to be due to general infiltration, rather than to a collection of fluid; gas bacillus infection was suspected.

After operation, the patient was isolated.

At 4 p. m. the patient was drowsy, as he had been since the operation. At 6 p. m., skin crepitation was present just above the pubis, and the skin was becoming red and very tender. At 7 p. m., the patient voided some urine voluntarily. At 11 p. m., he was doing badly. The chest was filled with loud, coarse râles. The suprapubic region was very painful. The skin was indurated and crepitant.

On the morning of February 26, the patient complained of great pain in the lower abdomen. Crepitation and induration were present to about 4 inches above the symphysis pubis. At 5 p. m., he became somewhat irrational. The redness and crepitation extended to the flanks. The skin of the scrotum became black and dry. From the wounds came a thick, bloody, foul-smelling discharge.

February 27, the patient was irrational. Breathing was rapid and stertorous. The induration seemed to be spreading upward. Axillary temperatures had to be resorted to, as oral and rectal temperatures could not be taken. Later in the day, crepitus was noted at the umbilicus. Pulmonary edema developed. At 11 p. m. the patient died.

The admission temperature was 99 F. In thirty-six hours, the temperature rose to 101.2. Thereafter, the temperatures were axillary. None was above 99, the last temperature recorded (February 27, 5 p. m.) being 98. The pulse was 108 on admission. It rose to 128 in thirty-six hours; then decreased to 100, and was 110 on the last day. The respirations were 30 a minute on admission, and gradually rose to 40 a minute on the last day.

The first culture (February 25) was an agar stab covered with melted agar. No growth was obtained (ten days). Direct smear showed gram-positive bacilli of variable length (some almost coccoid) and a few short chains of long, thin gram-negative bacilli. Another sample of the scrotal discharge was taken at 10 a. m., February 27. A culture of part of this was taken in tubes of agar covered with petrolatum, and in these, too, no growth was obtained. The remaining cultures were also deep stabs in agar tubes, with oxygen exhausted by pyrogallic acid and sodium hydroxid (Wright's modification of Buchner's method). In these tubes, gas formation was noted after twenty-four hours' incubation at 37.5 C. Smears and subcultures were made. The smears showed a profusion of short, rather thick gram-positive bacilli. The subcultures produced gas, and smears looked the same as above, except that a few gram-negative bacilli were present; further subcultures showed marked pleomorphism.

A further portion of the discharge (1 c.c. of discharge and 1 c.c. of saline solution) obtained, February 27, was injected into the marginal ear vein of a rabbit. Five minutes later, the rabbit was killed and placed in the incubator at 37.5 C. After eight hours, the rabbit was removed and a necropsy was performed. Gas bubbles were found, and crepitus in the subcutaneous tissues of the abdominal wall, and in the omentum, spleen and properitoneal fat. No gas was seen or felt in the liver. Direct smears and cultures were made from gas-containing areas. The gram-positive organism previously described was seen, and cultures were made, resulting in gas formation in twenty-four hours. Aerobic cultures were made, and no growth was obtained.

Case 2.—A. K., aged 54, a truckman, was brought to St. John's Hospital at 8:15 p. m., March 2, 1923, from a lumber yard. A pole, hit by an automobile truck, had fallen and struck the patient's left leg in the region of the popliteal space. The previous history was negative. When examined the patient was tossing about in bed. His face was pale, the skin cold and clammy. The pupils reacted to light and in accommodation. There was a severe laceration of skin and muscle tissue of the lateral surface of the left leg below the knee. A false point of motion was obtained below the knee (?). There was bleeding from the lacerated wound. A tourniquet was applied, and routine treatment (including the injection of 1,500 units of tetanus antitoxin) was administered. The diagnosis on admission was (1) shock; (2) severe contusion and laceration of the left leg, and (3) possible compound fracture of the left tibia.

The patient was sent to the male genital surgical ward, and placed in a bed adjoining the one which had been occupied by the man with the ischiorectal abscess on the night of the latter's admission, six days before.

Next morning, the patient was still pale. His left foot was white with a bluish tinge over the dorsum, and cold to the touch. No pulsation was felt in the dorsalis pedis or posterior tibial arteries. There was absence of sensation to about 3 inches above the knee. A slight amount of oozing was still present. A roentgenogram of the left hip, knee and leg was made.

During the night, the patient was restless and did not sleep. March 4, crepitation was elicited about the ankle, leg, knee, thigh, and in the left groin. At this time, the possibility of a gas bacillus infection was first entertained, and agreed on. The roentgen-ray report was negative. At 8 a. m., the patient vomited; at 3 p. m., he was delirious. The amputation of the lower extremity through the upper third of the thigh was performed at 5 p. m. At the time of the operation, the patient was distinctly in shock. He died during the course of the operation.

Several pieces of tissue were taken at necropsy. Deep stabs were made into glucose-blood broth, covered with sterile petrolatum. Gas formation was noted in the tubes after incubation at 37.5 C. for three hours. Smears showed the short, fairly thick, straight, gram-positive rods.

The patient's temperature was 96 on admission. The temperature did not go above 99.2 for twenty-four hours. It then took a sharp rise, and was 102.6 at death (within forty-eight hours after admission). The pulse was 120 on admission, and did not go above that rate until just before expiration, when it was 160. Respirations were 22 a minute until just before death, when they were 50 a minute.

NECROPSY FINDINGS IN FIRST CASE

The necropsy on the first patient revealed marked local and general changes. The abdomen was markedly discolored from the umbilicus to the symphysis on the right, and half that extent on the left. The penis and scrotum were very much discolored and edematous; and, when opened, the entire area was necrotic and gangrenous. No fistula was found between the ischiorectal abscess and rectum. Microscopically, there was moderate polymorphonuclear infiltration, with wide separation of muscle fibers and large, irregular spaces in the tissue. The gangrenous areas contained many gram-positive bacilli.

The spleen was about twice normal size, very soft, with marked crepitation on pressure. On section, the splenic tissue was dark, very soft, with loss of markings; and on pressure, it exuded a frothy, gaseous fluid. Microscopic section showed mainly connective tissue, blood vessels and a few areas of

lymphoid tissue. The pulp was almost completely destroyed. No bacilli were present in gram-stained sections.

There was biliary cirrhosis and parenchymetous degeneration of the liver. The kidneys showed chronic and acute toxic nephritis. In the cranial cavity, the blood vessels of the circle of Willis and small cerebral vessels contained small, irregularly distributed gas bubbles. The cortex showed distention of the capillaries, with slight polymorphonuclear and more marked mononuclear infiltration. No organisms were found in gram-stained sections of the tissues previously mentioned.

Cultures, aerobic and anaerobic, were taken from the abdominal wall muscle, heart, lung, liver, spleen, and from gas bubbles in the circle of Willis. The anaerobic cultures from the brain were "shot to pieces" by gas formation, in twenty-four hours. Smear showed gram-positive bacilli of the same morphology as the previous positive cultures. Cultures from the remaining tissues gave no growth.

TREATMENT

The first patient was treated by multiple wide incisions and drainage, followed by continuous flushing with hydrogen peroxid. The second patient was treated by amputation of the affected limb. Further treatment consisted of the routine measures against shock.

COMMENT

There are four strains of gas-producing organisms: *B. aerogenes-capsulatus* (bacillus of Welch); *B. perfringens; B. phlegmonis-empysematosae* and *B. enteritidis-sporogenes*. Stitt [2] maintains that all of these are possibly a single group of organisms. *B. perfringens* is very abundant in fertilized soil. *B. enteritidis-sporogenes* is constantly present in feces.[2]

Greeley [3] writes: "As the organism is a recognized common inhabitant of the intestinal tract and of distinct pathogenic abilities, it would be expected that lesions of the abdominal organs would, not infrequently, be followed by inflammation directly caused by this bacillus."

In view of these facts, we assume that the route of the ischiorectal infection was through the gastro-intestinal tract, by way of a fistula communicating with the ischiorectal region.

Our second case is of value in that it is evidence for the existence of contagion in gas-bacillus infections. It must be remembered that, while the second patient occupied the adjoining bed three days after the first patient with gas-bacillus infection had died, the organism responsible is spore bearing and resistant to ordinary routine hospital disinfection.

What explanation of the nature of the process do clinical observation and pathologic findings suggest? Of the many diverse opinions, those of Bull and Pritchett and of Kenneth Taylor seem to fit best.

Bull and Pritchett [4] assume "that soluble chemical substances entering the circulation from the local lesion bring about the severe symptoms and the fatal termination." Taylor [5] conceives that "the real action of the toxic principle is . . . that of converting healthy muscle tissue adjacent to the wound into favorable medium for growth and gas production by bacteria." He [6] suggests that the gas bacillus is a saprophyte, and that the purely mechanical action of the gas produced from the carbohydrate-containing tissues (hence muscle) on the blood vessels of the part causes necrosis with invasion of the dead tissue by bacteria, producing "putrefactive, autolytic and colliquative necrosis," which "induces rapid and profound toxic symptoms."

These two views are divergent. There is in them, however, a common element, the correctness of which is attested by our observation of a rapid spread, from the local focus, of gangrene preceded by crepitus; the low temperature and pulse rate throughout the course of both cases, and by the macroscopic and microscopic pathologic changes. Especially confirmatory is the fact that while internal organs—spleen, kidney, liver and brain—showed marked changes, the organism was seen only in the muscle tissue of the local focus. On this basis, the presence of the bacilli in gas bubbles in the brain vessels, as demonstrated by culture, must be explained as a terminal affair.

It may be noted that in neither case was the antitoxin, or serum of Bull and Pritchett, administered. Of this serum, Bull [7] writes: "In the light of the results obtained in treating the infection in guinea-pigs, it is reasonable to hope that antitoxin will be of value as a therapeutic agent. The indications are that early infectious cases can be readily arrested and the more advanced and severe ones ameliorated, if not wholly checked, so that surgical interference may be resorted to with greater probability of effectiveness." The serum, moreover, is not readily obtainable.

The question has previously been raised: Why is gas bacillus infection rare, when the causative organism has a widespread distribution and is communicable? It may be suggested that the organism is not virulent except under special conditions, of which the devitilization of carbohydrate-rich tissues—especially muscle—seems to be the most noteworthy. Under ordinary circumstances, then, the organism may be communicated, but not the disease. When the necessary conditions are met, it may be not only that the gas bacillus becomes virulent through mechanical or chemical action, but also that its intrinsic virulence is raised, so that the infection can be transmitted.

Of interest is the fact that a case [8] of gangrene of the scrotum from anaerobic infection reported in the French literature of 1919 is the only other case of gas bacillus infection of this region that we could find on record.

CONCLUSIONS

1. Lesions of the gastro-intestinal tract or adjoining tissues may be the seat of gas bacillus infection.
2. Gas bacillus infection is probably communicable through fomites.
3. The gas bacillus is demonstrable in the "exploded" muscle tissue of the local focus.
4. Extensive acute changes occur in the spleen, kidneys, liver and brain; but the organism is not demonstrated in these tissues.
5. Proper measures must be instituted for the protection of patients with traumatic wounds when gas bacillus infection is present or suspected in a hospital.

2. Stitt, E. R.: Practical Bacteriology, Blood Work and Animal Parasitology, Ed. 6, 1920, p. 109.
3. Greeley, Horace: Idiopathic Bacillus Aerogenes Capsulatus Infection, Bull. Johns Hopkins Hosp. **29**: 231 (Oct.) 1918.
4. Bull, C. G., and Pritchett, Ida W.: Toxin and Antitoxin of and Protective Inoculation Against Bacillus Welchii, J. Exper. Med. **26**: 119 (July) 1917.
5. Taylor, Kenneth: Gas Gangrene—Its Course and Treatment, Bull. Johns Hopkins Hosp. **26**: 297 (Oct.) 1916.
6. Taylor, Kenneth: Gas Gangrene, p. 297.
7. Bull, C. G.: Prophylactic and Therapeutic Properties of Antitoxin for B. Welchii, J. Exper. Med. **26**: 603 (Oct.) 1917.
8. Thibault, Albert; and Schulmann, Ernest: Gangrene foudroyante des bourses par infection anaerobie, Bull. et mém. Soc. méd. d hôp. de Paris **43**: 70 (Jan. 31) 1919.

Hybridization.—Kolreuter made the first systematic investigation of hybridization, which is the first stage resulting from the crossing of parents with different inheritable characters.—Buchanan, *Am. J. M. Sc.*, May, 1923.

Clinical Notes, Suggestions, and New Instruments

A CASE OF RUPTURED ANEURYSM OF THE SPLENIC ARTERY

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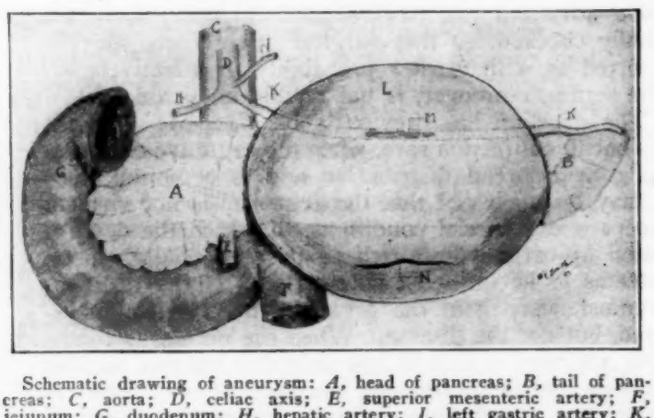
The rarity of a ruptured aneurysm of the splenic artery, coupled with several interesting features presented by this case, prompts me to report it.

History.—A colored woman, aged 38, had been in fairly good health up to the day of admission to the hospital, but for several years had been troubled with "indigestion," and had obtained some relief at times by using large amounts of soda. Menstruation had always been regular and normal in every way; the last period occurred one week prior to admission. While walking along the street, she was seized with a sudden sharp pain in the epigastrium, and immediately thereafter lost consciousness. She was brought directly to the hospital, and by the time she was placed in bed, consciousness had returned. She vomited just after admission.

Examination.—The patient was of moderate size, and was in a condition of severe shock. Her extremities were cold;



Schematic drawing of aneurysm: *A*, head of pancreas; *B*, tail of pancreas; *C*, aorta; *D*, celiac axis; *E*, superior mesenteric artery; *F*, jejunum; *G*, duodenum; *H*, hepatic artery; *I*, left gastric artery; *K*, splenic artery; *L*, aneurysmal sac; *M*, opening of aneurysm from artery to sac; *N*, ruptured portion of sac.

the pulse was imperceptible at the wrists; the heart rate was 130 beats a minute by auscultation; and the respirations, about 28 a minute. The mucous membranes were very pale and slightly cyanotic; the rectal temperature was 99 F.; the chest was normal. The abdomen seemed slightly full, symmetrical, and soft; no spasm was found anywhere; there was moderate tenderness all over the abdomen, but most marked in the left epigastric and umbilical regions; no masses were felt; the abdomen was dull to percussion everywhere except over the cecum anteriorly, where it was tympanitic; there was a definite fluid wave. Pelvic examination showed a pale vaginal mucous membrane, with no evidence of bleeding; the cervix was slightly soft, and was displaced toward the symphysis. The cervix admitted the finger tip. The posterior fornix was bulged downward by a mass that seemed to be continuous with the cervix and had the outline, consistency and size of a uterus from six to eight weeks pregnant; the lateral fornices were soft; the pelvis was moderately tender throughout. In view of these findings, a diagnosis of severe intra-abdominal hemorrhage was made; a ruptured left ectopic pregnancy was suspected.

Operation and Result.—Under light ether anesthesia the abdomen was opened through a long, left split rectus incision. It was filled with fluid blood and clots. The uterus was small, firm, retroverted, and bound in the pelvis by adhesions, presumably from an old pelvic infection. Both tubes were the site of a hydrosalpinx, and both ovaries were cystic, the left one being about 4 inches (10 cm.) in diameter. There was no evidence of any bleeding point in the pelvis. A striking feature of the case, noted at this point, was the presence of hemorrhage between the layers of the great omentum. This suggested the lesser sac as the seat of the trouble. A rapid exploration of the abdomen was then made, and a mass was felt in the lesser sac, through the gastrocolic omentum. This mass was then exposed. It was roughly oval, and about 3 inches (7.5 cm.) in its longest diameter. It seemed to arise from the midportion of the pancreas. Along its outer surface was a ragged tear about 1 inch (2.5 cm.) in length, plugged by a blood clot. This mass felt cystic, and through its wall could be felt plaques of firm, calcific-like material. The first impression of this mass was of an aneurysm that had ruptured and later become plugged with a portion of organized clot. An attempt to invert a portion of the sac and suture it over was made. The tissue, however, was too friable. It therefore was opened widely. The sac contained blood clots and some fresh arterial blood, but did not bleed after evacuation. This led to the belief that it was possibly a ruptured hemorrhagic cyst of the pancreas. The patient's condition did not warrant a very careful examination of the mass, which was therefore packed with gauze and marsupialized. The abdomen was rapidly closed. The patient lived about two hours.

Necropsy.—The cyst proved to be a ruptured aneurysm of the splenic artery. The aneurysm arose from the splenic artery opposite the midportion of the pancreas, and the wall of the aneurysm had become firmly attached to the anterior surface of the pancreas. Pressure from the aneurysm had produced a marked thinning of that portion of the pancreas to which it was attached.

CERVICAL SYMPATHECTOMY FOR ANGINA PECTORIS: REPORT OF A CASE WITH DEXTRAL RADIATIONS OF PAIN

PHILIP KING BROWN, M.D., SAN FRANCISCO

History.—J. D., a special officer, entered the Southern Pacific Hospital, Dec. 11, 1922, in a state of collapse with marked cardiac decompensation, auricular fibrillation and dyspnea. Aug. 29, 1922, at 8 p. m., he came home worn out from a long day's work. He had been on a twelve-hour shift since July 1, with gradually increasing weakness and shortness of breath. He would have to stand outside his front door after climbing eleven stairs and get himself in hand before entering the house. He felt that he could not keep on much longer. At 9 p. m., August 29, after going to bed without supper, he had a sudden pain in the region of the heart and out to the right shoulder, vicelike and piercing. In a few minutes the pain radiated to the left shoulder, down the right arm to the elbow and across the lower chest. The daughter poulticed the chest with mustard, and a physician gave digitalis. The pain lasted five or six hours, and was severe. The patient could not move, and screamed for relief. For three days the pain continued, but by the morning of the first day, eleven hours after the onset of severe pain, he had relief enough to allow him to doze. The chief pain during the latter part of the attack was in the heart region, radiating to the right shoulder. These pains came and went without being very severe.

Three weeks later, he took short walks of one block, but not without pain; and nine weeks after the first attack he had a sudden attack of shortness of breath and a period of choking, with the same pain he had been having, only more severe. There was a spasm-like attitude for thirty or forty seconds before he could breathe and then he began to breathe rapidly (Cheyne-Stokes?). Eight breaths would then be taken, whereupon there was another half minute without breath. From this time on he never was able to lie down until he entered the Southern Pacific Hospital, December 11. There were, in all, three severe attacks during the fourteen weeks, but from eight to ten minor ones a day. His main complaint on entering the hospital was his waking suddenly, gasping for breath; this had happened nearly every night since August. In his past history there were only two factors of interest. He had typhoid fever forty-five years before, and during his waking hours he used tobacco constantly.

Examination.—The patient had a clear skin and good color, and was well nourished. His respiration was labored. The pulse was 72, full and regular. The systolic blood pressure was 160; diastolic, 98. The reflexes were all normal except for absent knee jerks. The arteries were palpable everywhere and tortuous in the forehead. There were crackles at the bases of both lungs behind. The heart was enlarged laterally. The apex beat in the fifth space was 12 cm. to the left of the median line. The rate and rhythm were normal. There was a coarse systolic murmur heard chiefly at the base, but heard clearly everywhere. The liver was not enlarged, and there was nothing else of moment about the patient except the evidence of an enlarged aorta with high substernal dulness. The amount of urine eliminated in twenty-four hours was nearly 750 c.c., with a few hyaline casts and a trace of albumin. The Wassermann test was negative.

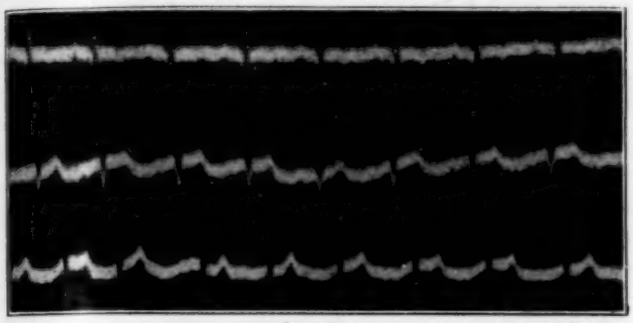


Fig. 1.—Before operation: inverted T in Lead I, with evidence of left ventricular preponderance.

There was a disposition on the part of the patient to remain absolutely quiet on his back in bed, which he explained by saying that it caused him pain if he moved at all. He was very restless and unable to sleep.

Treatment and Course.—The general care of the patient was directed toward making his heart action more efficient with digitalis, and giving him an exceedingly light diet with $\frac{1}{24}$ grain (0.0027 gm.) of morphin by hypodermic to make him sleep.

His pulse was found to show a tendency to be quite irregular at times, there being periods of extrasystoles after eating. He was at his best with small doses of sodium nitrite with the digitalis. He was gradually persuaded to get up from bed. The urine elimination was brought to between 1,000 and 1,500 c.c. in twenty-four hours. The pains he experienced on making any physical effort were all in the upper heart region and in the right shoulder.

A roentgen-ray examination showed a marked congestion of both bases of the lungs. The heart outline was difficult to make out on account of this congestion, but the transverse diameter was figured at 22 cm., and the diagonal diameter, 20 cm. The aorta was thickened and broadened, and measured 9 cm. in width. There was a slight residue in the stomach six hours after a barium meal.

The last of December, an examination by Dr. A. W. Hewlett of Stanford University School of Medicine disclosed a very large heart and many extrasystoles. The electrocardiogram showed an inverted T in Lead I, with evidence of left ventricular preponderance. One premature beat was an auricular extrasystole (Fig. 1). The vital capacity was 2,150 c.c., which was about 49 per cent. of the normal average, according to the standard employed. It seemed to Dr. Hewlett that, August 29, there was a blocking of one of the coronary branches, and that the second attack, which occurred six weeks later, was probably due to a pulmonary infarct. Dr. Hewlett did not think him a very good surgical risk.

As the patient was having only a few minor attacks a day, controlled easily by nitroglycerin, he was put on the pension list, and was to be discharged from the hospital. Then, at his own request, in spite of the severity of the heart and aortic condition, I obtained the consent of Dr. W. B. Coffey to remove the right superior cervical sympathetic ganglion. My reason for this was that all the mild attacks and the chief pain in the severe ones was right-sided, and I was convinced by previous experience[1] that spasm of the aorta in angina was controlled by the cervical sympathetic system and that it was safer to remove the ganglion than to try to cut the main trunk and the superior cardiac branch below the ganglion. It is certainly necessary to use the ganglion as a landmark in the operation, and the eye symptoms in the cases in which Dr. Coffey had removed it before were not in the least disturbing. The pupils contracted each time, but there was no such receding of the eyeball as described by Jonnesco.[2]

The operation was done under gas oxygen with a small amount of ether. The ganglion was exceedingly large and easily removed. Convalescence was uneventful, and the patient left the hospital two weeks later. Dr. Hewlett thus interpreted the second electrocardiogram (Fig. 2).

The electrocardiogram of the patient two and one-half weeks after operation shows some left ventricular preponderance. The negative T reported on the first examination is not visible on the present records. It is possible that a normal T would be due to the administration of digitalis, and this point should be cleared up. If one cannot account for the negative T of the first occasion in this manner, I shoulid say that the disappearance of this feature of the electrocardiogram is a matter of considerable interest in itself, indicating either an improvement in the heart muscle or a direct effect of the removal of the sympathetic ganglion. The vital capacity is 2,500—57 per cent.

Following his discharge from the hospital, the patient continued free from distress of any kind, and had no subjective symptoms referable to his heart. He continued well until February 23, when he had an attack of influenza, beginning with signs of bronchitis in the lungs, a severe sore throat and general aching. As was characteristic of the epidemic then at its height, he was very apathetic. He developed a double bronchopneumonia, but was afebrile on the fifth day, although markedly prostrated, and the bases of both lungs behind were full of râles. The blood pressure remained about normal (systolic, 140; diastolic, 80), and the pulse was of good quality, with a rate of about 90. The signs in the lungs remained stationary. The patient was given stimulation with caffein by hypodermic injection because the kidney condition was not satisfactory. After two days of normal temperature, he was still without appetite and very listless. The kidney secretion grew less, and the pulse weaker in spite of further stimulation. Suddenly, the pulse rate dropped to 45 and 55, and was almost imperceptible. The heart tones were so feeble that they could not be heard above the noise of the râles, and in spite of medication every two hours, with caffein, strychnin and camphorated oil, there was no heart response, and the patient died two days later. Only two doses of digitalis were given during the weakness, because of the fear of heart block. A diagnosis of advanced coronary sclerosis was made. A necropsy was refused.

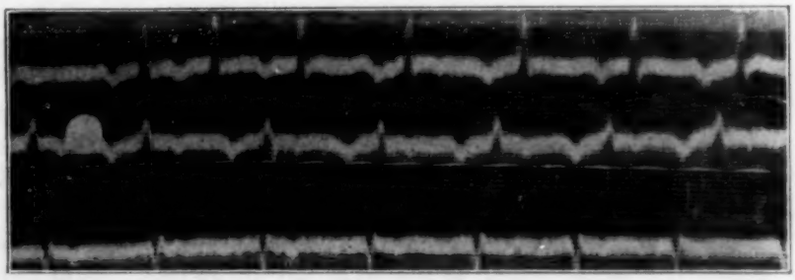


Fig. 2.—After operation: some left ventricular preponderance; negative T no longer visible.

Prior to this illness, the patient had been exceedingly comfortable, walking four or five blocks a day with neither shortness of breath nor pain. He said that he felt like a young man, but his daughter's watchful care prevented his overexerting himself at any time.

1. Coffey, W. B., and Brown, P. K.: The Surgical Treatment of Angina Pectoris, Arch. Int. Med. **31**: 200 (Feb.) 1923.
2. Jonnesco, T.: Bull. de l'Acad. de méd. **84**: 93 (Oct. 5), 1920; Presse méd. **29**: 193 (March 9) 1921.

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SATURDAY, JUNE 9, 1923

SIMPLE GOITER AS A PREVENTABLE DISEASE

"The old notion of 'diathetic diseases' is now giving place to the more definite concept of disorders of metabolism, many, perhaps all, of which are bound up with some *bouleversement* of hormonic equilibrium or some disturbance of function in the ductless glands." [1] Laboratory research and experimentation are making this pronouncement of Dr. Fielding H. Garrison, medical historian, more evident each day; but the regrettable fact remains that our prophylaxis does not altogether keep step with our knowledge. The studies of Marine and Kimball with regard to simple goiter, which were made possible under research grants from the American Medical Association, emphasize the prevalence of simple goiter and point to a method of prevention. Hypertrophy of the thyroid has been recognized from early centuries as a definite disease. Aëtius of Amida, who lived in Byzantium in the sixth century A. D., gives an interesting chapter on goiter in his book the "Tetrabiblion," and it was discussed by Ruggiero Frugardi of the Salernian school.[2] Moreover, that very brilliant charlatan Paracelsus was the first to establish a correlation between cretinism and endemic goiter.

While simple goiter may develop sporadically in almost any locality, even at sea, as it did during one of Cook's voyages, its strongholds have been in the plateaus and mountain regions, as in contradistinction to seacoast countries. McCarrison [3] reports, for the year 1912, 4,869 cases in the district of Monghyr and 3,142 in Bhagalpur in India, both of which districts lie in the Himalayan altitudes. In France alone there were 500,000 cases of goiter in 1874; in Switzerland, 12,207 men were exempted from military duty for this cause in the period from 1875 to 1881, and in Italy, from 1859 to 1864, 3 per cent. of the conscripts were excused from service on account of this affection.[4] In spite of the recognition of the prevalence of goiter, it is only recently that any systematic attempt has been made toward its prevention. As early as 1820, Dumas and Coindet [5] demonstrated the value of iodin treatment; in 1896, iodothyrin was isolated by Baumann, who indicated its relation to iodin metabolism, and in 1916 Kendall definitely determined this content as triiodo-indol-propionic acid. Kimball,[6] in his report, assembles collected data to show that there is truth in Marine's dictum that "simple goiter is the easiest known disease to prevent." He thus summarizes the conclusions of Marine and Lenhart: 1. Iodin is necessary for normal thyroid function. 2. The iodin content varies inversely with the degree of hyperplasia. 3. The percentage of iodin present in individual thyroids is variable, but there is a quite constant minimum percentage which is necessary for the maintenance of normal or colloid gland structure. If the iodin content falls below 0.1 per cent., active hyperplasia begins.

In a series of experiments from 1909 to 1911, Marine and Lenhart showed that goiter, which had virtually ruined the fish hatcheries at Shady Grove, Pa., could be eliminated by the addition of a small amount of iodin to the food. This was the basis of Marine's dictum, referred to above.

In the work of Marine and Kimball, which has been referred to repeatedly in THE JOURNAL, nearly 10,000 girls in Akron, Ohio, were examined in the course of three years. In the first examination, 56 per cent. were found to have goiters. The method of prevention was the administration of 3 grains of sodium iodid in the drinking water once a day for two weeks each spring and fall. Of those taking this prophylactic dose, no normal girl developed goiter, while 27.6 per cent. of those not taking it, and who had been without goiter at the beginning, developed either goiter or enlargement of the thyroid. The goiter disappeared in 60 per cent. of those who had goiter at the beginning and took the prophylactic doses. Kimball says, in comment on these experiments, "From our experience in Akron we know that if a girl's thyroid is kept saturated with iodin during the years of adolescence, a goiter will not develop; and when we remember that the total storage capacity of the normal thyroid is approximately three fourths of 1 grain of iodin, we appreciate that a small fraction of a grain of iodin at weekly intervals is sufficient to assure the full normal iodin content of the gland."

The findings of Marine and Kimball as to this method of prevention of goiter were forwarded to Switzerland in 1917, where they were employed with some slight modification as to the form of iodin. A report of the health commission of the canton of St. Gall shows that in January, 1918, the incidence of goiter among school children of that canton was 87.6

1. Garrison, F. H.: History of Medicine, W. B. Saunders Company, 1921, p. 732.
2. Garrison: History of Medicine, pp. 112 and 141.
3. McCarrison: The Distribution of Goiter in India, Indian J. M. Res. **2**: 778, 1914-1915.
4. Clark, T., and Pierce, C. C.: Endemic Goiter: Its Possible Relation to Water Supply, Reprint 184, U. S. P. H. S., May, 1921.
5. Coindet: Ann. de chim. et phys. **15**: 49-50, 1820.
6. Kimball, O. P.: Pub. Health Rep., April 27, 1923.

per cent., and in January, 1922, after iodin administration, 13.1 per cent.

This prophylactic administration of iodin has been extended in Ohio and has also been taken up in Michigan, but has not as yet found the extended application that it seems to merit. Kimball states that the possible harm from the dosage of iodin employed is absolutely negligible; that in the work in Akron a mild rash appeared in one per thousand cases treated, and that neither in this country nor in Switzerland has a single case of exophthalmic goiter been produced. His report ends with a plea for the administration of iodin as a routine prophylactic to girls during adolescence, and, in endemic goiter districts, to women during pregnancy. Since girls are six times as susceptible as boys, he believes that cases among the latter may be treated as they arise, especially since it is demonstrated that in them it disappears if treated promptly and properly.

SOME ASPECTS OF VITAMINS AND RADIANT ENERGY

The discovery by Osborne and Mendel, some years ago, that cod liver oil is rich in one of those essentials of nutrition now designated as vitamins, has given a new scientific dignity to a product long used in an empiric way for therapeutic ends. This interesting finding has naturally led to more intensive investigation, not only of cod liver oil itself, but also of many other animal and vegetable oils since demonstrated to be carriers of such physiologic potencies. There is considerable evidence already accumulated to show that the property currently designated as vitamin A is not entirely destroyed by saponification of the oils, whereby the fats lose their identity as such. Several investigators have already separated from cod liver oil nonsaponifiable fractions in which some, at least, of the effective component is concentrated in very small bulk. The sources of potent fish oils and the factors that affect the potency through their origin or modifications by commercial processes are being considered in various laboratories, so that one may confidently expect a helpful accumulation of knowledge in respect to a substance recently designated as a veritable specific against rickets.

Meanwhile there are growing indications that cod liver oil is even something more than is expressed by a wholesome nutrient fat and an antirachitic food. Its vitamin potencies are beginning to appear manifold in character. Experiments have made clear that cod liver oil will help to avert the nutritive disaster that comes about on diets devoid of vitamin A; that it will help to cure the experimental xerophthalmia which various species develop on such defective diets, and that it will protect against the onset of rickets, or cure the latter under certain dietary conditions. It was, of course, easily conceivable that all beneficial results might be the outcome of supplying a single missing food factor present characteristically in cod liver oil. Clinical observation and investigation have disclosed that radiant energy, as it occurs in sunlight and certain artificial forms, is also capable of preventing rickets from developing, or from continuing, if it is already established.[1] Neither the potent food factors in cod liver oil nor the light appear to bring new processes into operation, rather permitting the organism to have full use of processes that were natural to it all the time, but were not effective. Park has remarked that radiant energy is a powerful oxidizing and reducing agent in the case of the simpler chemical compounds, and probably exerts an influence of some such general nature in man and in animals. It communicates to the organism energy in some form that is apparently essential for normal metabolic activity, in particular in the growing organism. Park adds that cod liver oil operates in some such general way.

Of late, however, it has also become clear that, apart from their influence on rickets, cod liver oil and sunlight cannot be considered to have an equivalent action. The recent studies of Powers, Park and Simmonds [2] indicate that, whereas cod liver oil prevents the appearance of xerophthalmia in animals even more easily than it helps to avert rickets, the same cannot be said of either sunlight or the ultraviolet radiations from the mercury vapor quartz lamp. The latter seems to have little effect on the eye disorder. In other words, cod liver oil completely prevents the development of both rickets and xerophthalmia; light prevents completely the development of rickets, but does not always prevent the development of xerophthalmia. Radiant energy seems to contain the equivalent of the unknown factor in cod liver oil that prevents the development of rickets, but not to contain at all or only to a very slight degree the equivalent of the other factor in cod liver oil that prevents the development of xerophthalmia. The observations of Powers, Park and Simmonds thus suggest by analogy that there are in cod liver oil at least two distinct factors: one preventive and curative of rickets, and the other preventive and curative of xerophthalmia. Sunlight can compensate for the absence of the one, but not completely for the absence of the other.

The physiologic potency of direct sunlight and of various types of radiant energy has been made the subject of much speculation in recent years, and it has secured a practical application in therapy to a degree almost unwarranted by the present limitations of our knowledge. Under such circumstances, there is always danger of quackery. Sometimes medical charlatanism is comparatively harmless, except to the purse of the person who is duped. Not infrequently, as in the unintelligent use of radium or the roentgen rays, it may be seriously menacing. It is interesting to be

1. The subject is reviewed by Hess, A. F.: Influence of Light in Prevention and Cure of Rickets, Lancet **2**: 367 (Aug. 19) 1922. Park, A. E.: The Etiology of Rickets, Physiol. Rev. **3**: 106 (Jan.) 1923.

2. Powers, G. F.; Park, E. A., and Simmonds, Nina: The Influence of Radiant Energy upon the Development of Xerophthalmia in Rats: A Remarkable Demonstration of the Beneficial Influence of Sunlight and Out-of-Door Air upon the Organism, J. Biol. Chem. **55**: 575 (April) 1923.

reminded by Powers, Park and Simmonds, therefore, that no experiments involving sunlight have demonstrated that the effective agent has been sunlight alone. It is possible that the factors associated with exposure to direct sunlight outdoors have been responsible in whole or in part for the results usually attributed to the influence of the sun's rays. In their experiments there are no available data as to the exact nature of the operative factors. For the present, we should remember that exposure to sunlight outdoors makes the person subject to possible change—chemical, physical or both—by solar radiation and perhaps other unsuspected agencies that could not be operative in the laboratory. Whether these or unknown factors (acting singly or in combination with one another or with sunlight) or sunlight alone brought about the striking results remains to be ascertained.

As these investigators [2] have indicated, there is evidence that cod liver oil includes at least two distinct factors, one antirachitic and the other antixerophthalmic. Sunlight and fresh air can compensate for the absence of the one, but not completely for the absence of the other. However, to quote their words, these imperfections in our knowledge do not detract from the remarkable fact brought out in bold relief by their experiments, namely, that sunlight and outdoor air, with such factors as may be associated with them, have wonderful health and life giving powers which enable the animal to adapt itself with a considerable degree of success to adverse environmental conditions. Some day, let us hope, light and radiant energy in general will have been evaluated at their correct worth and in their proper meaning with respect to the problems of heliotherapy and health.

THE ORIGIN OF SERUM PROTEINS IN THE BODY

The recent development of the physiology of nutrition has placed the significance of the blood proteins in a new light. Before the period when the amino-acids acquired their dominance as the primary nitrogenous nutrients of the organism, a comparable importance was assigned to the blood proteins. It was assumed—for, assuredly, it was not proved—that the products of the digestion of protein were somehow converted during their passage through the alimentary wall into serum proteins. Thus it seemed as if the tissues drew on the blood proteins for their nitrogenous nutrients and that the supply of serum proteins became replenished after each meal containing albuminous substances. All of this edifice of hypotheses was shattered by the demonstration that the amino-acids are apparently not immediately synthesized into blood proteins after their absorption from the gastro-enteric tract. The physiologist, furthermore, has now found himself face to face with the problem of ascertaining the real function of the blood proteins. As Macleod has recently summarized the existing knowledge, the blood proteins are radically different from the tissue proteins. Substances that retard or accelerate nitrogen metabolism do not alter the relationship existing between the protein bodies of the blood. This fact, he adds, indicates that the serum proteins have a function quite independent of the nitrogenous metabolism of the body. They undoubtedly maintain the viscosity of the blood, and assist in preserving its neutrality. Attempts to localize the site of formation of the blood proteins have not been successful.

Extensive investigations in recent years [1] at the Hooper Foundation for Medical Research at the University of California have substantiated the conclusion that plasma proteins do not necessarily represent a transition stage between food protein and body tissue protein. When the content of serum protein is depleted by large hemorrhages with restoration of the withdrawn erythrocytes—so called plasmapheresis—regeneration seems to be a slow and difficult matter. It has been shown that this depletion presumably is the maximal stimulus for body production of serum protein, yet there is a marked delay in regeneration. It seems that the body can produce serum proteins only in small amounts, even in an emergency. Serum proteins can be regenerated when there is no protein intake in the food; therefore, the serum proteins must be formed from the body proteins under such circumstances. The California investigators found that regeneration of blood protein following plasma depletion may be delayed by simultaneous liver injury, such as is produced by intoxication with phosphorus or chloroform. This, they believe, points to the liver as being concerned in the maintenance of a normal level of blood serum proteins. The evidence here, they add, is not so convincing and striking as is the case in the plasma protein fibrinogen, which has such an intimate relationship to liver injury and disappears almost completely with acute liver injury.

Recently, however, German investigators [2] at Wurzburg have questioned to what extent the genesis of the serum proteins should be identified with the liver. In experiments on lower animals, regeneration has followed hemorrhage even in cases in which the liver was extirpated and part of the musculature excluded from possible participation in the new formation of circulating protein. Consequently, it is assumed that restitution of the latter is not characteristic of or associated with a single organ, even one of the physiologic dignity of the liver. Regeneration of serum proteins, in the view of these students of the problem, is a property of many rather than a few specific types of cells. The

1. Kerr, W. J.; Hurwitz, S. H., and Whipple, G. H.: Regeneration of Blood Serum Proteins, I, Influence of Fasting upon Curve of Protein Regeneration Following Plasma Depletion, Am. J. Physiol. **47**: 356 (Dec.) 1918; II, Influence of Diet upon Curve of Protein Regeneration Following Plasma Depletion, ibid., p. 370; III, Liver Injury Alone: Liver Injury and Plasma Depletion: The Eck Fistula Combined with Plasma Depletion, ibid., p. 379.

2. Gottschalk, A., and Nonnenbruch, W.: Untersuchungen über den intermediaren Eiweisstoffwechsel, I Mitteilung: Die Bedeutung der Leber und Muskulatur für den Wiederersatz zu Verlust gegangener Serumproteine, Arch. f. exper. Path. u. Pharmakol. **96**: 115, 1923.

correct answer is, therefore, still debatable. So long as severe hemorrhage constitutes a menace to human life, the importance of the question at issue should not be overlooked.

CANADIAN CHIROPRACTIC LEGISLATION: A PARADOX

By an act to regulate the practice of chiropractic, assented to, April 21, 1923, the legislative assembly of the province of Alberta provided for the licensing of chiropractors, and for that purpose defined chiropractic as "the method of treatment of human beings for disease and the causes of disease by means of adjustments by hand of the articulations of the spinal column and other adjustments by hand incidental thereto." But in thus putting its seal of approval on the chiropractic cult, the assembly seems to have been seized with some misgiving as to the wisdom of its course, for it proceeded to hedge, and enacted that "no registered chiropractor shall prescribe or administer drugs or medicinal preparations or treat any venereal disease, or any communicable disease, as defined by the *Public Health Act,* nor shall he perform any surgical operation, or practice obstetrics or any branch of medicine or osteopathy." The definition of chiropractic adopted is that of the school of so-called "straight" chiropractors, who teach that communicable diseases, in common with all others, are the result of displacements of vertebrae; that the germs and other living organisms found in connection with such diseases are merely scavengers, removing tissue dead because of such displacements, and that the reduction of the displacements in any case will cure the disease. The Alberta legislature clearly recognizes that the chiropractic claim is unsound and dangerous to the public health; for it refuses to allow patients suffering from syphilis or gonorrhea or from other communicable diseases—such as tuberculosis, typhoid fever and smallpox—to jeopardize their future welfare and the future welfare of their families and of the public, by trusting to the chiropractor for the cure of the disease. Why the legislature blinds itself to the jeopardy to the individual and to the social and economic loss to the community that result from the treatment, according to the chiropractic formula, of patients suffering from noncommunicable diseases, such as cancer, appendicitis, heart disease and even apoplexy, is beyond understanding. The pretensions of the chiropractor are as unsound and as fraudulent in the one case as in the other, and no legislative enactment can alter the fact.

In considering the limitations imposed on the chiropractor by the act with respect to surgery and obstetrics, one's mind is led into further mazes of logic and of sophistry. The chiropractor may treat a depressed fracture of the skull, by manipulation of the spine and other manipulations incident thereto, but he must not operate. He may treat a patient already badly septic from appendicitis, but unless by manual adjustments of the articulations of the spine and other incidental adjustments he can prevent rupture of the appendix, the patient has slight chance of recovery. He may treat, according to chiropractic doctrine, hemorrhage resulting from duodenal ulcer, but not the hemorrhage that sometimes complicates childbirth. The convulsions incident to pregnancy he may not treat, but the convulsions incident to diseases of the kidneys are within his field. This legislative attempt to define and limit the field of chiropractic activities seems at first glance to be without any clearly conceived purpose. It looks like an attempt on the part of the legislature to yield to the chiropractic demand, while limiting as much as possible his opportunities to do harm. But no one knows better than the chiropractors the end aimed at. The nose of the camel has wedged its way under the wall of the tent, and if the people of Alberta are not on the alert they may soon find the entire beast within, treating venereal and other communicable diseases and surgical and obstetric cases, and using drugs, just as if the chiropractor had the knowledge necessary to enable him to do so.

Posterity, as it reads this act—and the similar acts, no better and no worse, in force in the United States—will probably see in the background an ill concealed chiropractic lobby directing the actions of the legislature, while the legislators struggle to convince themselves that they are acting solely in the interest of the people and have at heart only the public health. Is it not possible for the present generation to do as much and to protect itself against the fraud?

Current Comment

STATE UNIVERSITIES AND POLITICS

Educators will view with much apprehension the statement that Governor Walton of Oklahoma has ousted several of the regents of the state university of Oklahoma, and also made conditions so uncomfortable that President Stratton D. Brooks, under whose administration the university has made excellent progress for several years, has resigned and accepted the presidency of the University of Missouri—an offer which he had recently rejected because of his deep interest in the University of Oklahoma. President Brooks had accepted the presidency of this institution, it is stated, under the definite understanding that it would be exempt from political influences, and without such freedom no state university can make satisfactory advancement. When it is subject to upheavals with each change of administration, there is bound to be a constant unrest in all departments, and instead of having a constant and steady growth from the educational point of view, the institution from necessity becomes a political machine in which the merits of its faculty will depend more on their work and influence as politicians than as educators. It is difficult to secure and retain competent and self-respecting

teachers under such circumstances. So far, little protest has been noted from the people of Oklahoma against the governor's action, and perhaps they do not realize the serious position in which their state university is now placed. In Texas, several years ago,[1] when former Governor Ferguson attempted to remove President Vinson and certain regents and teachers of the University of Texas, the result to himself was disastrous. So great was the furor that arose from educators throughout the state that he was promptly impeached by the legislature and suspended from office. So prompt and decisive was the reaction that any future governor of Texas will indeed be brave who makes a similar attempt. It is high time that all our state universities should be left free to develop as educational institutions, unhampered by interference from politicians.

A CLINICAL STUDY OF ECTOPIC PREGNANCY

Since Lawson Tait operated on a patient with ruptured tubal pregnancy in 1883, our knowledge of ectopic gestation has advanced almost to completion. The successful application of that knowledge, however, in making a diagnosis still varies with the number of atypical cases encountered. It appears to be impossible to diagnose correctly a considerable percentage of ectopic pregnancies. Fortunately, operative interference is indicated by the erroneous diagnoses as strongly as it is by the real pathologic condition. Under ideal hospital conditions, therefore, these errors are not necessarily serious. In the gynecologic clinic of the Johns Hopkins Hospital and University,[2] fifty cases of ectopic pregnancy came to operation between 1917 and 1922. Correct diagnoses were made in 72 per cent. of these cases. No pathognomonic symptom was present. A pelvic mass was not palpable in six cases, pelvic tendereness was absent in seven, there was no history of pain in two. There was a history of missed menstrual periods in only twenty-four of the cases, and of irregular menstrual bleeding in thirty-seven. The cervix was normal in thirty-eight, the fundus enlarged in only five, and in no instance was a bluish discoloration of the umbilicus noted; in view of many reports as to the value of this sign, its absence in such a series seems significant. The average hemoglobin content was 61 per cent. That a maximum quantity of blood had been lost by some patients in this series is evident. There were, in all, twelve infusions and seven transfusions. Convalescence was uneventful in forty cases, and stormy in ten. All of the patients made a complete recovery.

1. Politics Endangers a Great University, Current Comment, J. A. M. A. **68**: 1916 (June 23) 1917; University of Texas Freed from Politics, ibid. **69**: 1086 (Sept. 29) 1917.
2. Brady, Leo: A Clinical Study of Ectopic Pregnancy, Bull. Johns Hopkins Hosp. **34**: 152 (May) 1923.

Rheumatism and Heart Disease.—Rheumatism ranks with tuberculosis in its mortality and disabling effects, and from the economic aspect alone the problem is not receiving the attention it deserves. The early recognition of rheumatism in young life and full and thorough treatment of its effects in convalescent hospitals would be of far-reaching importance in the amelioration of heart disease.—I. J. Davies, *Clin. Jour.* **52**:166 (April 4) 1923.

Association News

THE SAN FRANCISCO SESSION

Hotel Reservations for Delegates

All members of the House of Delegates who wish to have accommodations at the Palace Hotel at San Francisco and who have not already made reservations should write *immediately* to the Palace. As has been repeatedly stated in THE JOURNAL, 150 rooms have been tentatively reserved for members of the House of Delegates, in order that every delegate might be assured of hotel accommodation. These rooms cannot be held until the very last moment. Those not wanted or not needed must be released in order that they may be available for members.

THE "M.D. SPECIAL" TRAIN

Reservations on the "M.D. Special" of the Northern Pacific Railway returning from San Francisco are rapidly being made. This trip with the various stop-overs, including four days spent in Yellowstone Park, is one that will long be remembered. Dr. A. W. Ide of St. Paul will personally conduct the tour and any information relative to the plans made will be gladly supplied by addressing him at 914 Northern Pacific Building, St. Paul.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALASKA

Influenza Epidemic.—Officers of the U. S. Coast Guard cutter *Haida* reported recently an epidemic of influenza among natives on the western Alaskan coast. They stated that several natives on Sannak Island had died from the disease, that at Morzhoivs, practically every person was sick and that the food supply was very low. The *Haida* landed food, medicine and coffins, and assisted in burying the dead. A medical officer was left in charge.

CALIFORNIA

Physician Wins Malpractice Suit.—In the suit brought by Effie and Hugo Peterson against Dr. Fred H. Williams of Selma for $54,000, alleging malpractice, the jury, March 24, brought in a verdict for the defendant.

Personal.—Dr. Ralph W. Homer and Dr. Thomas E. Cunnane, both of Ventura, were elected president and secretary, respectively, of the Ventura County Medical Society at the annual meeting, May 14, at Oxnard.——Dr. Walter Lenker, county health officer and superintendent of the San Bernardino General Hospital, will resign, July 1, and be succeeded by Dr. Emmet L. Tisinger, assistant superintendent at the county institution.——Dr. Stuart Z. Peoples, Petaluma, has been appointed chairman of the newly organized board of directors of the Sonoma County Public Health Association. ——Dr. George C. Sabichi, Bakersfield, has been elected president of the Kern County Medical Society.

Hospital News.—The new Shriners' Hospital for Crippled Children, San Francisco, was dedicated, May 26.——The capacity of the Jewish Consumptive Relief Sanatorium, Duarte, will be increased by about fifty beds. The present capacity is ninety-two. Several new cottages, a new infirmary and a medical building will be erected.——The new five-story San Jose Hospital, San Jose, was formally opened, June 1. H. J. Bostwick, for many years superintendent of the Clifton Springs (N. Y.) Sanatorium, is manager of the institution. ——A four-story hospital will be erected at Santa Ana for Orange County at a cost of approximately $300,000. The new institution will be erected on a 7-acre site on Grand and East Washington avenues.——The Los Angeles County Hospital, Los Angeles, has changed its name and will in the future be known as the Los Angeles General Hospital.

CONNECTICUT

Sheppard-Towner Law Refused.—The Connecticut legislature passed an act in April directing the state department of public health to refuse the federal aid provided for under the Sheppard-Towner Law. This act was signed by the governor.

License Declared Illegal.—Dr. Stanley H. Osborn, commissioner of health of Connecticut, writes that through an oversight a certificate of license to practice medicine was issued to a Francis P. Trapani even though the college from which he claims graduation was not on the approved list. Trapani "was promptly notified within a week that he had been illegally licensed and that his license was not valid in this state." The attention of secretaries of other state licensing boards is called to this fact. The license was number E-682 and was issued April 19, 1923.

DISTRICT OF COLUMBIA

Dr. Cumming Arrives at Geneva.—Dr. Hugh S. Cumming, Surgeon General of the U. S. Public Health Service, arrived in Geneva, Switzerland, May 30, to arrange collaboration of the League of Nations' international health work with the United States.

School Medical Inspection Scored.—At a meeting of the board of education, Washington, May 2, it was decided that provisions for more extensive medical inspection in the public schools will be sought in next year's budget, if the board can obtain the support of local social service agencies interested in the work. Prof. Frank W. Ballou, Ph.D., superintendent of schools, stated that the present school medical inspection service is medical inspection in name only.

FLORIDA

State Medical Meetings.—At the fiftieth annual meeting of the Florida Medical Association in Jacksonville, May 15-16, the following officers were elected for the ensuing year: president, Dr. Herman Marshall Taylor, Jacksonville; vice presidents, Drs. John C. Vinson, Tampa, Robert F. Godard, Quincy, and Robert B. McIver, Jacksonville. Dr. Graham E. Henson was reelected secretary-treasurer. The next annual meeting will be held in Orlando, May 1924.——At the fourth annual convention of members of the Florida Railway Surgeons' Association, in Jacksonville, May 14, Dr. Henry C. Dozier, Ocala, was elected president; Dr. Julius C. Davis, Quincy, vice president, and Dr. Edmund W. Warren, Palatka, secretary (reelected).

GEORGIA

Personal.—Dr. Victor H. Bassett, acting health officer of Savannah, has been elected health officer of Tybee.——Dr. T. L. Anderson, Dalton, celebrated his one hundredth birthday, recently.——Drs. Albert L. Crittenden, Shellman, and Frederick D. Petterson, Culbert, have been appointed members of the state board of health for six year terms.——Dr. Elijah L. Connally, Atlanta, celebrated his eighty-sixth birthday, May 6. He was chairman of the first board of health of Atlanta.

ILLINOIS

Illegal Practitioner Arrested.—According to reports, Clifton G. Stone, River Forest, with offices in Chicago, was arrested, June 4, on a charge of practicing surgery without a license.

Personal.—The Decatur Medical Society presented Dr. Ellen F. T. Grimes of that city with a purse of gold, May 15, in recognition of nearly fifty years' practice of medicine.—— Dr. Samuel C. Crispin, Danville, has been appointed county physician.

Legislature Would Cripple Health Service.—The lower house last week adopted an amendment to the omnibus bill which lowers the health department budget by $80,000 a year. If the senate sustains the amendment, the result will be a disorganization of the medical field service, and a crippling of the department's plans for constructive work during the next biennium, according to Dr. I. D. Rawlings, state director of public health. The funds contemplated under the item stricken from the bill were to employ district health superintendents. The budget provided for a maximum of twenty-five superintendents, while the amendment, which allows $20,000 annually, would provide for five.

Chiropractor Recalled from Board of Health.—A field physician of the state department of public health recently persuaded a newly elected mayor of a down-state municipality to recall a chiropractor appointed on the local board of health. Two physicians who had been appointed on the same board declined to serve with the chiropractor. The state department of public health took the position that it neither had nor sought to secure the power of dictating the color of local boards of health but that it looked with distinct ill favor on the official participation of chiropractors in public health matters and that in case of untoward communicable disease development under the administration of chiropractic boards of health the department would promptly exercise its legal power to take charge of the situation at local expense.

Physicians Fined.—It is reported that Drs. Charles S. Mellen, Lewis A. Whipple, Charles S. Zeigler, Charles M. Noble, Perry F. Jones and W. G. Bonny of Peoria; Warren T. Heaps, Kewanee, and Hubert Miller, Wyoming, were fined $500 and costs, each, by Federal Judge Fitzhenry at Peoria, May 17, when they pleaded guilty to violating the national prohibition law.——Dr. Henry L. Davis, West Frankfort, was fined $200, on a charge of violation of the Volstead act, by Judge English, in East St. Louis, May 17. Dr. Mae H. D. McInnes, also of West Frankfort, according to report, was fined $150 on the same charge.——Dr. Joseph D. Vertin, Oak Park, was fined $1,000, May 28, by Federal Judge Cliffe, according to reports, when he pleaded guilty to violation of the Harrison Narcotic Law.

Chicago

Dr. Springer Resigns.—Dr. Joseph Springer, coroner's physician for twenty-six years, resigned, June 1. Dr. Irving Porges will succeed Dr. Springer.

"The Battle of Cook County."—It is reported that since January 1 there have been 284 deaths due to automobiles in Cook County, ninety-seven due to "moonshine," and ninety-five due to gun-shot wounds.

Chicago Society of Internal Medicine.—At the eighth annual meeting of the society at the City Club, May 28, the following officers were elected for the ensuing year: president, Dr. Robert H. Babcock; vice president, Dr. Solomon Strouse, and secretary-treasurer, Dr. Newell C. Gilbert.

Annual Baby Week.—The annual "Baby Week" occurs this year, June 3-10, during which time a drive for funds will be conducted. In addition to twenty-eight infant welfare stations in the city maintained by the Infant Welfare Society, the department of health has twenty-one devoted to infant welfare work. Last year, it is said, the welfare society cared for 12,000 babies at its stations.

Chicago Medical Society "on Vacation."—No further meetings of the society will be held until October, but the official bulletin of the society will be published as usual during the summer months. The society has agreed to operate a bureau for the purpose of informing physicians in advance of the financial reliability and pay propensities of a new patient before he renders expensive or extensive services.

New Court to Examine Druggists.—A second whisky permit revocation court was created in Chicago, May 28, at the prohibition office by a special staff of inquiry from Washington, D. C. The duties of the new court will be to examine druggists charged with filling bogus liquor prescriptions and to investigate illegal withdrawals of liquor. Judge Elmer Little has been ordered to Chicago from Washington to establish this second revocation court.

American Association for Thoracic Surgery.—The sixth annual meeting of the association was held in Chicago, May 29-30. Dr. Ralph Boerne Bettman, Chicago; Dr. Rudolph Matas, New Orleans, and Dr. William Lerche, St. Paul, were among the physicians who gave addresses. The following officers were elected for the ensuing year: president, Dr. Carl A. Hedblom, Rochester, Minn.; vice president, Dr. Nathan W. Green, New York, and secretary-treasurer, Dr. Charles Gordon Heyd, New York (reelected).

Plans at the University.—At the annual alumni banquet of the University of Chicago, President E. DeWitt Burton stated that he hoped to see a group of eight or ten colleges after the manner of Oxford and Cambridge universities, England, in the near future; also a great medical school growing out of the affiliation with Rush Medical College. Dr. Burton said that work on the new medical school, which has been delayed on account of high building costs, will soon be started; $5,000,000 has been raised for this purpose; it is said the medical school will eventually have behind it nearly $25,000,000.

INDIANA

General Vaccination at South Bend.—In the face of a smallpox epidemic, the board of health of South Bend has ordered all factory executives, school principals, and heads of all institutions, municipal, industrial and commercial, to see that all persons in their employ are vaccinated, within ten days, unless they have been successfully vaccinated within the last seven years. The isolation hospital is filled with smallpox patients; tents are being used to house the overflow of new arrivals. Vaccination will be without charge for persons unable to pay.

IOWA

Physicians Win Malpractice Suit.—The suit brought by Lillian Skelton against the Park Hospital Clinic, Mason City, to recover $7,500 for alleged malpractice in the treatment of a fractured clavicle, closed, May 23. Judge Kepler directed the jury to find for the defendant. Dr. George M. Crabb and Mathew J. Fitzpatrick are in charge of the clinic.

Hospital News.—Contracts have been awarded and work will start at once on a hospital building for epileptic children at Woodward, which will house 200 children from the state colony. The building will cost $124,000.——A home for the Sisters of St. Joseph's Mercy Hospital, Dubuque, is nearly completed. The building is three stories high and was erected at a cost of $90,000.

KANSAS

Child Welfare Conferences.—A series of seventeen child health conferences have been arranged by the Ottawa County Health Department for children of preschool age. These conferences will be held in strictly rural communities.

Medical Laboratory Association.—At the annual meeting of the Kansas Medical Laboratory Association, in Lawrence, Prof. L. D. Bushnell, Manhattan, was elected president; L. C. Hill, Emporia, vice president, and Dr. William Levin, Topeka, secretary-treasurer.

MASSACHUSETTS

Appointments at Harvard University.—John H. Mueller, Ph.D., associate professor at Columbia University, New York, has been appointed assistant professor of bacteriology at the Medical School of Harvard University, Boston, and Dr. Hilding Berglund has been appointed assistant professor of medicine.

Boston Roentgenologist Receives Medal.—The Sir James MacKenzie Davidson medal was presented to Dr. Ariel W. George of Boston, at a joint meeting of the Roentgen Society of London and the electrotherapeutic section of the Royal Society of Medicine, in London, England, May 17. Sir Humphry Rolleston, president of the Royal College of Physicians, presided. Dr. George, the first American to receive this medal, addressed the meeting on "The Pathological Gallbladder."

Gift for Cancer Research.—The Hancock Life Insurance Company, Boston, has made an additional gift of $20,000 to the Harvard Cancer Commission; $5,000 to be used for purchase and installation of a diagnostic apparatus and $15,000 to be placed in the permanent fund. The insurance company previously gave $30,000 toward the building of the Huntington Hospital, which is devoted exclusively to cancer cases. The new gift will be used in the biophysical laboratory, which is also under the direction of the commission.

MICHIGAN

Wayne County Medical Society.—At the annual meeting of the organization in Detroit, May 21, Dr. Frank A. Kelly was elected president; Dr. George E. Frothingham, vice president, and Dr. Bruce C. Lockwood, secretary.

Dr. Novy at "Old Bart's."—Dr. Frederick G. Novy, professor of bacteriology, University of Michigan Medical School, Ann Arbor, presented an address of congratulation to the Prince of Wales at the celebration of the eight hundredth anniversary of St. Bartholomew's Hospital, in London, June 7-9.

Chiropractor on Probation.—According to reports, Miss Erma F. Parker, chiropractor of Hillsdale, was convicted of practicing medicine without a license, recently, and put on one year's probation on condition that she refrain from practicing her profession. The judge said "as I understand your profession of chiropractic, it is held in the decisions of the supreme court to be the practice of medicine; but that the law does not preclude you from taking such studies as will enable you to pass the examination and then practice your chiropractic profession. And the prosecution here is only for the purpose of requiring people who do practice medicine in the state of Michigan, whether that practice is drugless or otherwise, to take such a course of studies as equips them to be able to distinguish the difference between diseases and ailments."

NEBRASKA

New Hospital Opened.—St. Catherine's Hospital of Sienna, recently completed at McCook, was formally opened to the public, May 16. The building was erected at a cost of $100,000.

State Radiological Society Organized.—The Nebraska Radiological Society was organized, May 14, at a banquet of physicians held in Lincoln. Dr. Roscoe L. Smith, Lincoln, was elected president; Dr. Rolland C. Woodruff, Grand Island, vice president, and Dr. Roy W. Fouts, Omaha, secretary-treasurer.

NEW HAMPSHIRE

Personal.—Dr. William Holt, assistant superintendent of the Providence City Hospital, Providence, R. I., has been appointed director of the Lamont Infirmary, Exeter.

New Hampshire Medical Society.—At the one hundred and thirty-second annual meeting of the society at Concord, May 23-24, the following officers were elected for the ensuing year: president, Dr. Howard N. Kingsford, Hanover; vice president, Dr. Louis W. Flanders, Dover, and secretary-treasurer, Dr. Dennis E. Sullivan, Concord. The 1924 meeting will be held at Manchester. Resolutions protesting against the government paying for the training of ex-service men as chiropractors and in favor of the establishment of a four-year medical course in a New Hampshire medical school were adopted at the closing sessions. Dr. Herbert L. Smith, Nashua, presided.

NEW JERSEY

Health Exposition Succeeds.—More than 200,000 tickets were issued for the health exposition held in Newark, June 4-9. The city community and industrial welfare organizations occupied twenty-two of the sixty-seven "booths" assigned to the city. A parade through the streets of Newark opened the exhibition.

Illegal Practitioners Fined.—The following fines have been reported by the state board of medical examiners for individuals guilty of practicing medicine without a license: Alfred C. Pedrick, Passaic, whose license was revoked, Feb. 15, 1921, $200; Michael Lisena, druggist of Newark, $200 and costs; Thomas and Emma Di Santi, unlicensed chiropractors, of Newark, $200 and $500, respectively. This was Thomas Di Santi's second offense.

NEW MEXICO

Memorial to a Physician.—Plans have been practically completed for the Gilbert Memorial Hospital, which is to be erected at Alamagordo, in memory of the late Dr. Jesse R. Gilbert. The project is being financed by the citizens of the community and will cost approximately $15,000.

NEW YORK

Memorials to Physicians.—The medical staff of the Hospital for Joint Diseases, New York, will erect a tablet to the late Dr. David Heine Levy, because of his services on behalf of crippled children. Dr. Levy was assistant surgeon at that institution.——A statue of the late Dr. John A. Wyeth has just been completed by the sculptor, Gutzon Borglum, "the gift of a grateful patient of the lamented surgeon."

New York City

Medical Alumnus Meeting.—The Association of the Alumni of the College of Physicians and Surgeons in the City of New York held a meeting, May 21. Dr. Karl M. Vogel, assistant professor of clinical pathology of Columbia University, spoke on "Around the World in a Sailing Ship."

Memorial to War Dead.—The Jewish Memorial Hospital at Dyckman Street and River Road was formally dedicated on May 27 to the memory of soldiers, sailors and marines who died in the World War. A bronze tablet was unveiled, which bears a bas-relief of a battlefield, and the names of the officers and directors of the hospital and the ladies' auxiliary. The hospital has 100 beds.

Weekly Journal Project Fails.—At the recent annual meeting of the state medical society a plan for a weekly journal for the organization was presented to the house of delegates by a committee, headed by Dr. Orris S. Wightman. The necessity for such a journal was conceded, but the matter was laid on the table to be taken up at some future time because of lack of funds to finance the proposition at the present time.

OHIO

From Ohio to California.—B. E. Swem and Glenn L. Potter, chiropractors of Lima, were found guilty of practicing medicine without a license by Justic Guyton, May 18, according to reports. Swem was fined $25. Sentence was suspended on condition that he discontinue practice in Ohio. He stated that he would move to California.

OKLAHOMA

State Association Requests Investigation of Prices.—The Oklahoma State Medical Association at its thirty-first annual meeting, held at Tulsa, recently, called on Governor Walton to make an investigation of the prices of vaccines and serums in their state. It was shown that the people of Oklahoma pay almost twice as much for such products as do the people of Tennessee. A package of typhoid vaccine, for example, that sells in Oklahoma for $1.20, sells in Tennessee for 80 cents; antitetanic serum selling in Oklahoma for $2.50 sells in Tennessee for $1.67. The association directed its secretary to place before the governor all available evidence in this matter. It is said the secretary was able to show that a certain wholesale serum house sent monthly, to the office of the state commissioner of health, a check for $50. The governor, as well as the public, was advised that the present commissioner, Dr. A. E. Davenport, was in no way involved, since checks were received prior to his administration, and since he, on taking office, returned "the present" with the advice that all checks pertaining to his department should be made payable to the state of Oklahoma.

OREGON

Southern Oregon Medical Association.—At the annual meeting of the association in Ashland, May 8, the following officers were elected for the ensuing year: president, Dr. Charles B. Wade, Roseburg; vice president, Dr. Bertram R. Shoemaker, and Dr. William W. P. Holt, Medford, secretary, to succeed Dr. Alvane C. Seely who had served in that capacity since 1908. Roseburg was selected for the 1924 convention of the association.

PENNSYLVANIA

Chiropractic Licensing Bill Defeated.—For the second time this session, the house voted down the Dunn bill which would require licensing chiropractors and providing them a board of examiners.

Children's Hospital Burns.—The Children's Hospital of Pittsburgh was destroyed by fire, May 31. More than 100 patients, most of them crippled, were moved to the Magee Maternity Hospital nearby. There was no loss of life. The main building, many years old, was the center of a number of wings. The fire started in one of the wings and spread rapidly.

Philadelphia

Jefferson Medical College Commencement.—The ninety-eighth annual commencement was held at the Academy of Music, June 1. Dr. Edward H. Hume, dean of the Hunan-Yale College of Medicine in China, who received the honorary degree of doctor of laws, delivered the address. One hundred and forty-seven men graduated, and twenty-three members of the class received commissions as first lieutenants in the Medical Officers' Reserve Corps of the army. This is the first group of students to receive army commissions from Jefferson Medical College, as the result of having satisfactorily completed a course in military science and tactics.

RHODE ISLAND

State Medical Meeting.—The annual meeting of the Rhode Island Medical Society was held in Providence, June 7. Dr. Arthur T. Jones was elected president for the year 1923-1924; Drs. William F. Barry and Halsey DeWolf, vice presidents; Dr. Jesse E. Mowry, treasurer, and Dr. James W. Leech, secretary.

Making Veterans Chiropractors Opposed.—The Rhode Island Medical Society has adopted resolutions pointing out that the training of veterans at public expense as chiropractors is not for the best interest of the veteran or of the public, and commending the director of the Veterans' Bureau for action taken by him looking toward its discontinuance. (Note.—Unfortunately, the U. S. Veterans' Bureau seems to have reinstated chiropractic as an approved calling for disabled veterans.)

TEXAS

Cornerstone of Rice Laboratory Laid.—Dr. Edgar Fahs Smith, emeritus professor of chemistry at the University of Pennsylvania Medical School, Philadelphia, laid the cornerstone of the new chemical laboratory of the Rice Institute, Houston, June 4. The laboratory, which will be erected at an approximate cost of $1,000,000, will be ready for occupancy by the opening of the school in September, 1924, it is stated.

Hospital News.—The new Homan Sanatorium which will be erected on Mount Franklin, El Paso, several blocks above the present institution, will be five stories high and have 128 rooms. There will be departments for roentgen-ray, Alpine lamp and pneumothorax treatments, and a solarium for heliotherapy. It will cost approximately $150,000, and be ready for occupancy about November 1.

VIRGINIA

County Medical Meeting.—At the first meeting held since 1919 of the Accomac County Medical Society, May 3, at Onley, Dr. Joseph L. DeCormis was elected president; Dr. William M. Burwell, vice president, and Dr. John W. Robertson, secretary-treasurer.

WASHINGTON

Prisoner a Leper.—All prisoners in the federal penitentiary at McNeil's Island, Seattle, were examined for leprosy, May 22, following the discovery that one of them was an advanced case of that disease.

WISCONSIN

Physician Fined.—It is reported that Dr. Friedrich C. Liefert, West Allis, was fined $50 in the district court recently for failure to report a birth.

Diabetes Clinic.—A diabetic clinic was held by the Five County Medical Society, consisting of physicians from Barron, Polk, Sawyer, Burnett and Washburn counties, at Rice Lake, May 22. Dr. Harold E. Marsh, Madison, was the principal speaker.

Licenses Revoked.—Appeal to the Supreme Court has been taken by Dr. Argo M. Foster, Racine, whose license was recently revoked. The court also revoked the licenses of Drs. Frank L. Fancher and William G. Wheeler, of Racine, on charges of unprofessional conduct, it is reported.

Tuberculosis Sanatoriums.—The state board of control is now issuing a weekly report giving the number of patients in the various state and county tuberculosis sanatoriums, and the waiting list and number of entrants. There are at present 405 males and 352 females in the various institutions. There are forty-six on the waiting list and there are 100 vacancies. Some of the sanatoriums are filled but some are not and this accounts for the vacancies.

CANADA

Ontario Health Officers Association.—At the ninth annual conference of the association, held in Toronto, May 21-23, the following officers were elected: president, Dr. Theodore A. Lomer, Ottawa, Ont.; vice presidents, Drs. Charles N. Laurie, Port Arthur, Ont., and Fred Adams, Windsor, Ont., and secretary, Dr. J. J. Middleton. Dr. Frederick G. Banting read a paper on insulin.

Society News.—The Western Ontario Academy of Medicine held its final general session for the term of 1922-1923, May 25, in London. Dr. William Goldie, Toronto, spoke on "Hypertension"; Dr. Hugh Cabot, Ann Arbor, Mich., on "Small Renal and Urethral Calculi," and Dr. Thomas H. Morgan, New York, on "The Anatomy of the Pelvic Floor in Relation to Gynecology and Obstetrics."

GENERAL

American Otological Society.—At the annual meeting of the society in Atlantic City, N. J., May 23, Dr. John B. Rae, New York, was elected president; Dr. David Harold Walker, Boston, vice president, and Dr. Thomas J. Harris, New York, secretary-treasurer.

American Urological Association.—At the annual meeting of the association in Rochester, Minn., May 21-23, the following officers were elected for 1923-1924: president, Dr. James A. Gardner, Buffalo; vice president, Dr. Herman L. Kretschmer, Chicago; treasurer, Dr. James B. Cross, Buffalo, and secretary, Dr. Homer G. Hamer, Indianapolis.

American Pediatric Society Elects.—At its thirty-fifth annual meeting held in French Lick Springs, Ind., May 31-June 2, the American Pediatric Society elected the following officers for the ensuing year: president, Dr. David Murray Cowie, Ann Arbor, Mich.; vice president, Dr. Charles A. Fife, Philadelphia, and secretary-treasurer, Dr. Howard Childs Carpenter, Philadelphia.

Laryngologists Elect Officers.—At the annual meeting of the American Laryngological Association in Atlantic City, N. J., May 16-18, the following officers were elected: president, Dr. Joseph Payson Clark, Boston; vice presidents, Drs. Hubert Arrowsmith, Brooklyn, and Joseph B. Greene, Asheville, N. C.; secretary, Dr. George M. Coates, Philadelphia, and treasurer, Dr. George Fetterolf, Philadelphia.

Directory of Full-Time County Health Officers.—The U. S. Public Health Service has compiled a directory of all the whole-time county health officers of the United States from data furnished by state health officers. In the questionnaire sent for the purpose of obtaining the necessary information a "whole-time" county health officer was defined as "one who does not engage in the practice of medicine or any other business, but devotes his whole time to official duties." There are 233 health officers in all listed.

Society News.—The twenty-eighth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be held in Washington, D. C., October 16-18. Sir William Lister, London, England, will be the guest of honor. Fellows are invited to contribute papers for the scientific sessions.——The annual meeting of the Association of Women in Public Health will be held in Boston, June 18.——The annual New York State Conference of Health Officers and Public Health Nurses will be held in Saratoga Springs, N. Y., June 26-28.

Health Statements Discontinued.—The bi-weekly statements on national health legislation have been discontinued until after the present recess of Congress, it is announced from the Washington, D. C., office of the National Health Council. Mr. James A. Tobey, formerly Washington representative, has been appointed administrative secretary, with headquarters at Three Hundred and Seventy-Seventh Avenue, New York, after June 1. Through an arrangement with the American Child Health Association, Miss Lyne of that organization will temporarily serve as Washington representative of the council.

"Storm" at International Opium Conference.—At the opium conference in Geneva, Switzerland, May 30, the British delegate Sir Malcolm de Levigne introduced a resolution recommending that the League of Nations adopt the American plan to restrict the production of opium to strictly medicinal needs. A league council was decided on to work out the details to carry out the American proposals. It is expected that an international commission will be summoned to meet during the league assembly. A later report, however, stated that on June 1 the four members of the American delegation left the meeting, when the delegate from India insisted that the American proposal be made more precise.

Supreme Court Declines to Pass Judgment on Sheppard-Towner Maternity Act.—Neither of the two cases brought before the U. S. Supreme Court to determine the constitutionality of the Sheppard-Towner Maternity Act were properly before the court, and the court, therefore, dismissed them for want of jurisdiction. This leaves the constitutionality or unconstitutionality of the act undetermined and undeterminable until a case is presented in which there is evidence that constitutional rights of a citizen have been impaired, so as to present a direct issue under the act. When such circumstances arise, a citizen may appeal to the court on his own behalf. The right of a state to appeal on behalf of its entire body of citizenry was denied.

Veterans' Bureau Modifies Rule on Chiropractic Training.—Reference was made in THE JOURNAL, May 5, p. 1323, to an order of the U. S. Veterans' Bureau to the effect that ex-service men undergoing rehabilitation would not be permitted to take vocational training in chiropractic. This position has been reversed by an order issued May 18, which permits beneficiaries to be entered on a course of training in chiropractic, but only when, prior to original induction, they had the "educational preparation and qualifications as shown by satisfactory credits and evidence required for entrance into a Class A medical college." Even then they can be entered in only those chiropractic schools located in states where the practice of chiropractic is legal, and shall be required to sign a statement of intent to practice only in a state or states where such practice is legal.

"Have a Health Examination on Your Birthday."—A nation-wide movement for yearly health examinations for everybody has been launched by the National Health Council. The campaign slogan is "Have a health examination on your birthday." The goal of the council is the examination of 10,000,000 persons in the year which starts July 4. Dr. Donald B. Armstrong, executive officer of the council, states that more than $3,000,000,000 is the annual loss to this country from preventable diseases and deaths. It is believed that the carrying out of the proposed plan will be a factor in increasing the span of life, that if the attention of these 10,000,000 people is called to preventable physical defects and they profit by hygienic advice and medical attention given them, there is no reason why the average length of life in this country cannot be increased at least five years in the next decade.

Annual Report of Rockefeller Foundation.—The activities of the Rockefeller Foundation during 1922 are stated as follows in the president's report:

Pledged $1,125,000 toward new buildings for the College of Medicine of the State University of Iowa.

Contributed to the current maintenance of two medical schools in Canada.

Endowed chairs of medicine and of surgery in Hongkong University.

Completed the buildings, strengthened the faculty, and wholly financed the Peking Union Medical College.

Agreed to appropriate $300,000 toward laboratories and premedical teaching in two Chinese institutions and in one missionary university in Peking.

Helped nineteen hospitals in China to increase their efficiency in the care of patients and in the further training of physicians and nurses.

Promised to cooperate in the rebuilding and reorganization of the medical school of Sao Paulo, Brazil, and of the medical school of Siam, in Bangkok.

Made a survey of medical schools in Austria, Czechoslovakia, Germany, Hungary, Poland and Switzerland, and studied English and Scotch methods of clinical teaching.

Sent medical men as visiting professors or consulting officers to China, the Philippines, Brazil and Salvador.

Arranged for a commission of medical scientists from Strasbourg to visit the United States and England.

Gave emergency aid in the form of medical literature, laboratory supplies and apparatus, fellowships and stipends to promising investigators and teachers in the Pasteur Institute of Paris and in many other European centers.

Pledged $2,000,000 toward the site, building and equipment of a school of hygiene in London.

Cooperated with state boards of health in maintaining institutes and instruction for health workers.

Shared in malaria control in thirty-four county and thirty-two town demonstrations in ten southern states, and continued field studies and surveys in the United States, Porto Rico, Nicaragua, Brazil, Palestine, Australia and the Philippines.

Cooperated with the Mexican and other governments in steadily restricting the prevalence of yellow fever.

Resurveyed centers of hookworm infection in four southern states, and carried on control work in twenty-one foreign governmental areas.

Took part in promoting full-time health service in 163 counties in eighteen states of the United States, and in several counties in Brazil.

Agreed to support for five years the disease-reporting service, and for three years the international exchange of health personnel program of the health section of the League of Nations.

Provided fellowships in public health, medicine, nursing, chemistry and physics to 237 advanced students from twenty-three countries.

By consultation and the providing of personnel aided public health administration in the United States, Australia, Brazil, Canada, Central America, Czechoslovakia, France and the Philippines.

Contributed to mental hygiene projects, demonstrations in dispensary service, hospital information service, surveys of nursing education and hospital management, the organization of tuberculosis work in France, the training of French health visitors, and other undertakings in the fields of public health and medical education.

LATIN AMERICA

Society Elections.—The Sociedad Argentina de Pediatria recently elected Drs. M. Santas, president; J. M. Obarrio, vice president; A. Casaubón, secretary; E. A. Beretervide, recording secretary; R. Iribarne, librarian; C. S. Cometto, treasurer, and A. Segers and J. P. Garrahan, members of the board.

Personal.—The government has appointed, as official delegates to represent Argentina at the scientific congresses to be held at Paris and Strasbourg between May and October, Drs. Fernando Pérez, N. Lozano and J. A. Gabastou, all of Buenos Aires.——The medical students of San Salvador recently presented the gold medal of their society to Dr. J. Llerena on his retirement from his connection with the medical school. It was stated that more than twenty generations of students had been trained by him in obstetrics. *El Salvador Médico* for April reproduces the addresses at the

presentation celebration.——Prof. E. Rabello of Rio de Janeiro has been appointed the representative of the medical faculty at the scientific congresses and exposition of hygiene at Strasbourg. The government has sent by Prof. Borges de Costa a collection of radio-active minerals, films, casts and other data to represent the public health service of Brazil at the Strasbourg exposition.——Dr. A. da Cunha of the Brazilian delegation to the recent Pan-American Conference at Santiago, described with moving pictures the work of the public health service in Brazil and of the state serum institute.

FOREIGN.

First Graduates of Keio College.—The first sixty-nine medical students of the Keio University Medical College, Tokyo, graduated in April. The college was established four years ago by Dr. S. Kitasato, the bacteriologist.

Antiopium Pills Forbidden in Shanghai.—The city magistrate of Shanghai has forbidden the importation and sale of "red pills" (antiopium pills) on the ground that they contain various drugs and are worse, in their effects, than morphin.

Insanity in Holland.—According to the official statistics, the thirty-three psychiatric institutions in the Netherlands had 15,811 inmates, Jan. 1, 1921 (7,842 men and 7,969 women), against 15,080 (7,583 men and 4,797 women) on the corresponding date in 1919. The population of the Netherlands is said to be 6,831,231.

German Physicians in New Danish Provinces.—Our exchanges state that the Danish government has granted permission to practice medicine in North Schleswig to duly qualified German physicians who were born in Schleswig or had lived there before 1918 and been admitted to practice in Germany before 1923.

Prize for Anthropologic Research.—Dr. Kleiweg de Zwaan, of the University of Amsterdam, has instituted a triennial prize of 2,500 francs to be awarded to the man or woman irrespective of nationality, who, in the course of three years, publishes the results of meritorious research in anthropology, prehistoric or otherwise.

Death from Thyroid Tablets.—The *Hygienisk Revy* relates that a child, aged 3 years, died, and another, aged 2, is seriously ill from eating thyroid tablets at Domsjö. The children were brought to the hospital immediately, but one died the same day. This is said to be the first direct fatality from thyroid tablets known in Sweden.

Centennial of the Geneva Medical Society.—The Société médicale de Genève was founded in 1823, and its centennial was celebrated, May 12, with much ceremony. The organized pediatrists and radiologists of Switzerland held their annual meetings there the same week, besides the inauguration of the national photography exposition with its special section devoted to medicine and surgery.

Union of Chinese Medical Schools.—The North China Union Medical College for Women and the School of Medicine of the Shantung Christian University have merged. Ground has been purchased and funds are already in hand for new buildings to be erected at Tsinanfu. The Shantung Christian University is contemplating opening the premedical departments to women students also.

Renting the Home of the Berlin Medical Society.—The Langenbeck-Virchow Haus was built for the headquarters of the German Surgical Society and the Berlin Medical Society. Its upkeep has been such a burden that the officials have rented the building to the Siemens and Halske firm for a period of ten years, with the provision that the societies shall continue to have the use of the building for meetings.

Special Classes for Feebleminded in Japan.—Following investigation by a committee appointed by the department of education, special classes for feebleminded children in all primary schools of Japan will be established. Among nearly 5,000,000 primary school children, 150,000 are said to be mentally deficient. As they show improvement in the special classes, these children will be transferred to the regular grades.

Gullstrand Prize Endowment.—To further ophthalmologic research and honor Professor Gullstrand, the Swedish Medical Association in 1922 founded a prize fund to award a gold medal. It is to be called the "Gullstrand Medal" in honor of Dr. Alvar Gullstrand, professor in physiologic and physical optics at the Upsala University. This prize will be awarded for the first time in 1932 and thereafter each tenth year, without regard to nationality.

Venereal Disease in Iceland.—Up to 1890 there were, according to official reports, no venereal diseases in Iceland. Gonorrhea became endemic soon thereafter, and syphilis followed in 1900. The period 1911 to 1920 shows a yearly average of from 130 to 160 cases of gonorrhea, and about twenty-three cases of syphilis and seven or eight of soft chancre. Puerperal fever is common, attributable to the fact that physicians assist at only 4 per cent. of all births. The population was 47,000 in 1800, but is now 98,000; the general death rate has averaged 14 per thousand since 1910.

The Law Against Quackery in Sweden.—The law of 1688, which was in force in Sweden up to 1916, ordered fines of from 12.50 to 25 kronor (about $3 to $6) for persons convicted of quackery. The fines being so small, the quacks paid and continued their business. By the law of 1916 the fines were raised to from 50 to 1,000 kronor, or one year's imprisonment in certain cases for not duly licensed physicians undertaking to cure any of a certain specified list of diseases, if the treatment is dangerous to the life and health of the patient. But there is nothing to prevent any one from administering sugar, for instance, for a period during which the diseases may become incurable. An editorial in the *Hygienisk Revy* protests against this law which aims at regulating, rather than abolishing, quackery.

Course on Medical Hydrology.—The University Extension Board of the University of London has arranged a course of lectures for medical practitioners and senior students on medical hydrology in cooperation with a joint committee of the International Society of Medical Hydrology and the Section of Balneology and Climatology of the Royal Society of Medicine. The course will begin May 29 and end June 4. It is intended for those who are engaged, or propose to engage, in spa practice, for medical officers of hydrotherapeutic institutions and sanatoriums and for others interested in the subject. Demonstrations of various forms of bath will be given at the Special Surgical Hospital, May 29, and of the recording kata-thermometer and other methods of controlling open-air treatment, at the National Institute for Medical Research, May 30.

Society News.—The French Association of Pediatrics will hold its next congress in Brussels in September, under the presidency of Dr. M. Péchèvre. Pneumococcal infections in infancy; diagnosis and treatment of intestinal obstruction, and the treatment of abnormal children, are the subjects that will be discussed.——The congress of the Association of French Gynecologists and Obstetricians will be held in Geneva, August 9-11.——The National Association for the Prevention of Tuberculosis will hold its ninth annual meeting in Birmingham, England, in July.——The National Association for the Prevention of Infant Mortality and the National Baby Week Council will hold a joint conference on infant welfare, July 2-4, in London. The Right Hon. Neville Chamberlain, minister of health, will preside.——The annual session of the Sectional Congress of Medicine was held in Tokyo, March 31-April 4. The societies for tuberculosis and roentgenology, recently established, held their first meeting during the session. About 1,200 papers were read before the sections.——The third annual congress of German otorhinolaryngologists was held at Kissingen, May 17-19.——The twenty-fifth anniversary of the Dutch Orthopedic Society was held at the University of Amsterdam, May 25-26, under the presidency of Dr. Murk Jansen.

Personal.—Dr. Polybius N. Coryllos, Athens, Greece, has accepted the appointment as professor of clinical surgery at Cornell University Medical College, New York. Dr. Coryllos was formerly a chief surgeon of the Greek army.——Dr. Arnold Chaplin has been nominated president of the section of the history of medicine of the Royal Society of Medicine.——Dr. S. J. Clegg, deputy health officer of Newcastle-on-Tyne, England, has been appointed medical officer of health for Durban, South Africa.——The Swedish Medical Association has recently elected to foreign membership Profs. L. Bianchi of Naples, G. Mingazzini of Rome, F. Samberger of Prague, and Dr. K. Hübschman of Prague.——A fund is being collected for the purpose of presenting a medal to Professor Menetrier of Paris. A bronze replica of the medal will be given to each person subscribing 50 francs. Subscriptions are being received by the publishing firm of Baillière et Fils, 19, rue Hautefeuille, Paris.——Prof. J. Teissier of Lyon having recently been elected to membership in the Rome Academy of Medicine, went in person to be installed, and tell of his latest research on nephritis.——Professor Lafora of Madrid has left for Buenos Aires, where he has been invited to deliver a course of lectures in the med-

ical school.——Eighteen physicians left Copenhagen in May for a two weeks' trip to the Czechoslovakian watering places. Eight of the party are the guests of the Czechoslovakian government.

Deaths in Other Countries

Sir Shirley F. Murphy, first medical officer of health for London, England; aged 74; died, April 27, of influenza. Dr. Murphy was awarded the Jenner medal by the Royal Society of Medicine, and the Bisset Hawkins medal by the Royal College of Physicians.——Dr. **Charles J. S. Hancock,** surgeon major, Indian Medical Service, at Leytonstone, England, May 8.——Dr. **Charles Niven,** professor of natural philosophy, Aberdeen University, Scotland, May 11.——Dr. **George H. Hume,** at Newcastle-on-Tyne, aged 77.——Dr. **H. Luce,** director of the internal medicine department of the General Hospital at Hamburg, aged 56.——Dr. **Mewes,** director of the Anatomy Institute at Königsberg, aged 54.——Dr. **E. F. Polito,** a dermatologist and urologist of Buenos Aires.——Dr. **V. Remedi,** professor of surgery at the University of Siena, author of works on hernia and the surgery of the pancreas.——Dr. **J. Fein,** professor of laryngology at the University of Vienna.——Dr. **J. Furth,** an officer of the Vienna Medical Society.——Dr. **Dumoulin,** a medical officer of the Belgian army in the occupied region in Germany.——Dr. **Repelin,** formerly professor of gynecology at Lyon.

Government Services

Bandits Release Major Allen

Major Robert A. Allen, M. C., U. S. Army, who was captured by Chinese bandits and held for ransom on Paotzuku Mountain for several weeks, was released, May 30, it is reported.

Citizens' Military Training Camp

The Secretary of War and the Citizens' Military Training Camps Association of the United States announce that from August 1 to September 1 the Red, White and Blue Courses of the Sixth Corps Area (Illinois, Michigan and Wisconsin) will camp at Camp Custer, Mich. Employers are requested to select five picked men in their employ between the ages of 17 and 24, and give them two weeks' additional vacation with pay, on condition that they take the month's training at Camp Custer. Every man is required to be vaccinated against smallpox and typhoid fever before reporting at camp. Vaccine will be sent, on request, to the family physician.

Assistant Director of Veterans' Bureau Appointed

Capt. O. W. Clark, Cincinnati, has been named assistant director in charge of the Rehabilitation Division of the Veterans' Bureau. The position was formerly occupied by Col. R. I. Rees, detailed from the War Department; but has been vacant nearly five months. Captain Clark will assume his duties immediately and will aim to effect many changes in this division. Accompanying the announcement was a message that there will be a saving of approximately $7,500,000, as a result of the activity of the new director in reorganizing the rehabilitation work.

Veterans' Bureau Tuberculosis Course Repeated

A second course in tuberculosis, at New Haven, Conn. (THE JOURNAL, June 2, p. 1627), began, June 1, and was attended by a large number of physicians of the Veteran's Bureau staff. It is expected that this course will be repeated from time to time until all physicians in the bureau have received tuberculosis training. A similar course has heretofore been in operation at the Fitzsimons Hospital, Denver.

To Be Commissioned in the Navy

The following physicians have been examined and found qualified for commission as lieutenant (junior grade) in the Medical Corps of the U. S. Navy: Rob Roy Doss, South Boston, Va.; Claude S. Mumma, Chicago; Frederick C. Greaves, Duluth, Minn.; H. L. Pugh, Charlottesville, Va.; Caldwell J. Stuart, University, Va.; Oliver A. Smith, Atlanta, Ga.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 14, 1923.

International Congress of Refrigeration

The fourth International Congress of Refrigeration will be held in London about June, 1924. The subjects to be discussed will be verification of experiments undertaken before the war by the Russian scientist, Bakhmetieff, relating to the action of cold on living organisms; cryotherapy in the treatment of certain skin diseases; use of refrigeration in anatomy; biologic study of milk preservation by refrigeration; bacteriology of ice cream; biologic study of chilled and frozen foods; use of frozen eggs in food preparation; refrigeration by the circulation of defibrinated blood; refrigerating installations in hospitals and dwelling houses; operation and maintenance of refrigerating installations from the point of view of health and hygiene; handling of frozen produce; molds in cold stores, and the means of combating them; and molds in meat and other frozen produce. D'Arsonval proposes to contribute a report on the preservation of serums and vaccines by refrigeration. As will be seen, many of the subjects are of medical interest. The organizers of the congress desire to get in touch with members of the medical profession who would be willing to contribute papers on the uses of artificially produced cold with regard to medical research and practice. The secretary is Mr. John D. Farmer, Dartford Iron Works, Dartford, Kent, England.

The Mental Treatment Bill

As the result of a conference between administrative authorities, medical superintendents of mental hospitals and specialists, a bill has been read a second time in the House of Lords permitting, without certification, mental treatment in institutions. The bill was introduced by the Earl of Onslow, who pointed out that the present law was defective, as scientific knowledge as to treatment was not sufficiently advanced when it was passed. The importance of the subject was shown by the fact that there are now 120,000 certified lunatics costing $30,000,000 a year. To these are added 22,000 fresh cases every year, of whom 32 per cent. are discharged as recovered. Besides certified lunatics there are 150,000 feebleminded persons, and a portion of the population (which some have estimated as high as 10 per cent.) are dull and backward mentally. Lastly, there are the cases of neurasthenia and psychoneurosis. Much of this might be prevented by early treatment. As the law stands, it is very difficult to provide for treatment of incipient mental disease without certification, and there is a strong feeling against certification. At present, voluntary boarders can be received in private licensed houses but not in public institutions. The present bill is surrounded with every safeguard against misuse: 1. The institution in which the patient is received must be approved by the board of control (the body appointed by the government to supervise lunacy administration) and under frequent inspection by that body. 2. There must be a recommendation from two physicians. 3. The patient must be admitted only at his own request, unless he is incapable of volition. Then the recommendation of the two physicians must be countersigned by a magistrate or clergyman personally acquainted with the patient. The patient will be admitted for a maximum period of six months, which may be extended for the same period. If he has not recovered within a year, the ordinary provisions of the law as to lunacy can be applied, but at any time during the year he can leave the institution by giving forty-eight hours' notice, or he may

be discharged by the superintendent or the board of control. Patients may be admitted into either mental hospitals or general hospitals. The latter have the great advantage of keeping them from contact with the certified insane.

Regulations for the Sale of Condensed Milk

The ministry of health has issued regulations providing for a uniform method of labeling all tins containing condensed milk or condensed skimmed milk, whether sweetened or unsweetened, and for specifying the composition in terms of milk solids. All condensed milk must be labeled with one of four declarations:

Condensed full cream milk, unsweetened. This tin contains the equivalent of (*a*) pints of milk.
Condensed full cream milk, sweetened. This tin contains the equivalent of (*a*) pints of milk, with sugar added.
Condensed machine-skimmed milk (or condensed skimmed milk), unsweetened. Unfit for babies. This tin contains the equivalent of (*a*) pints of skimmed milk.
Condensed machine-skimmed milk (or condensed skimmed milk), sweetened. Unfit for babies. This tin contains the equivalent of (*a*) pints of skimmed milk, with sugar added.

The declaration must be printed in dark block type of prescribed size on a light ground with a surrounding line, and must bear no other printed matter. The label must also bear the name and address of the manufacturer or the dealer in the United Kingdom for whom the milk is manufactured. It is forbidden to place on the tin any comment, explanation or reference in regard to the statement of equivalence, or to the words "machine-skimmed," "skimmed" or "unfit for babies," or any instructions as to dilution unless they clearly specify that the resultant milk is not of equivalent composition to milk or skimmed milk, or unless the resultant fluid correspond in milk solids to milk of the standard set by the regulations. Whenever the word "milk" appears on a tin containing condensed skimmed milk, it must be qualified with the words "machine-skimmed" or "skimmed." The regulations prescribe these standards:

Description of Condensed Milk	Percentage of Milk Fat	Percentage of All Milk Solids, Including Fat
Full cream, unsweetened	9.0	31.0
Full cream, sweetened	9.0	31.0
Skimmed, unsweetened	...	20.0
Skimmed, sweetened	...	26.0

Humane Slaughtering: The Jewish Method

A movement is on foot for the enforcing of humane methods of slaughtering animals, and incidentally the Jewish method of slaughter has come under the denunciation of the reformers as anything but humane. The evidence is quoted of two eminent physiologists, the late Sir Michael Foster and Professor Starling, that cattle may remain conscious for a short time after the cutting of the carotid arteries. In a letter to the *Times*, Prof. Leonard Hill states that this view was based on a mistaken supposition that the vertebral arteries supplied the brain of these animals as they do in man, and that these arteries, shielded by the bone and not severed by the cut, might convey blood to the brain for a few seconds after the cutting of the carotids. But Professor Hill has pointed out, in a report which he made on methods of slaughter, that the vertebral arteries in cattle supply the muscles of the neck and not the brain. He holds that the evidence that stoppage of the carotid arteries causes loss of consciousness is overwhelming; and also that a big injury is not felt at the moment of infliction. The casting of the animal before the severing of the carotids has also been described as inhumane, but Professor Hill says that it is no more inhumane than the roping down before the application of the "humane killer."

Recent Advances in Medical Education in England

Sir George Newman, chief medical officer of the board of education, and also chief medical officer of the ministry of health, has addressed an important report to the minister of health on recent advances in medical education in England. He insists on the importance of the preliminary sciences, and says that, as the center of knowledge is forever shifting, we are in need of a closer association between physics and chemistry, on the one hand, and biology and medicine on the other. When the student enters the professional part of his course, physics and chemistry must be deeply integrated into physiology, pharmacology and pathology, and practically applied in his clinical studies. Anatomy is the foundation of the science and art of medicine, but it became a restricted subject neither biologic in setting, nor physiologic in purpose. The student was overburdened with detail and could pass examinations only by cramming. The anatomy was that of the dead, not the living, body. The subject should be taught from the point of view of its applications. Lecturing on physiology has been overdone, but now has been much reduced, and the student needs less if previously well grounded in biology, physics and chemistry. Physiology is now being taught more adequately, and the student is learning to think of disease as disordered physiology. In some schools, he is being taught in his second year to study cases in the hospital as illustrative of physiologic principles. Professor Dixon of Cambridge says: "To state that the future of medicine lies in pharmacology may sound fanciful, but the most hopeful of all signs of the progress of medicine is the progress of the science of treatment." In this country, synthetic chemistry has not been widely developed, and we have relied on the continent for new anesthetics, hypnotics, vasodilators, antipyretics, diuretics and synthetic purgatives. As a remedy, there is urged the establishment of an institute of experimental therapeutics, which should comprise all branches of pharmacology—chemical, experimental and clinical. The British method of the clinical study of medicine and surgery is described in the new regulations as consisting of (*a*) clerks and dressers, (*b*) bedside teaching, (*c*) clinical lecture demonstrations, (*d*) clinical teaching in the outpatient department, (*e*) clinical work in the special hospitals and (*f*) junior house appointments. Sir George Newman holds that this system has made English medical education the most practical in the world. Much importance is attached to the recent introduction into our hospitals of university clinics (clinical units). On the question of whole-time staffing, the view is expressed that the head of the clinic should be permitted to undertake such outside practice as would not interfere with his official duties. For the rest of the staff, the object should be not only the setting apart of one or more whole-time clinicians for educational work, but the creating of a team of clinicians who are also laboratory workers under the control of a professor, so that the education of the student may be conducted on lines that will produce the best treatment for patients and advance knowledge. In conclusion, four requirements are emphasized: 1. Integration is needed in the medical course to avoid overburdening the student with details, so that he may "reflect, comprehend and grow." 2. Clinical study must remain the sheet anchor of education; instruments and apparatus should be only supplementary to observations by the organs of sense. 3. The load of examinations must be lightened; the present system remains a shackle on education. 4. Postgraduate courses are necessary to keep the practitioner informed of new medical knowledge and its applications. In London, a central scheme is necessary for the graduates of the twelve schools, and for physicians from the colonies and foreign countries.

PARIS

(From Our Regular Correspondent)

May 11, 1923.

Laying the Corner Stone of the "University City"

The corner stone of the "University City" was laid, May 9, in the presence of M. Léon Bérard, minister of public instruction; M. Paul Strauss, minister of public health; Prof. Paul Appell, rector of the University of Paris; the deans of all the faculties of the University of Paris; Dr. de Lobinière-Harwood, dean of the Faculty of Medicine of Montreal; Dr. Rousseau, dean of the Faculty of Medicine of Quebec, and many university professors. The men and the women students were represented by the respective presidents of the general associations. A student, M. Kauck, read an account of the origin of the University City, which had been engrossed on parchment and which was afterward enclosed in the corner stone of the edifice, together with a number of coins of this year's mintage, to perpetuate the memory of the establishment.

This is the first of a group of buildings intended to provide healthy and economical lodgings for 350 men and women students of limited means. They are to be erected on the leveled fortifications of Paris, at the southern extremity of the Latin Quarter, on a plot of ground deeded by the city to the University of Paris. The funds for the buildings themselves were secured through the liberality of M. Emile Deutsch de la Meurthe, who made for this purpose a gift of 10 million francs. The hope is entertained that the foundation established by M. Deutsch de la Meurthe will be followed by others, all destined to provide for the needs of students and due to the initiative of generous minded persons, whether they be French or foreigners, who are friends of France. This group of buildings will form the University City so called, and will constitute a suburb for students, located between the Montsouris Park and another park to be specially laid out for them through the solicitude of the city of Paris. As is impressively stated in the parchment roll deposited in the corner stone, "Thus will have been established a new focus of French and human culture, where three thousand students, coming from all countries of the world, provided with books, sunlight and fresh air, brought together in affectionate emulation and reflecting honor on the oldest university of Europe [founded in the second half of the twelfth century], will work together in concert to bring about a harmonious development of their minds and bodies, which will redound to the progress of science and to an understanding among the nations they represent."

Progress of Physical Education in France

The law of Dec. 21, 1922, assigned to the budget of public instruction an appropriation of 700,000 francs to provide for the expense of physical education in the school curriculum. A considerable sum was appropriated for the organization in the several departments of short courses in physical education intended for the training of personnel to give instruction in the primary public schools. To assure the carrying out of these measures, the minister of public instruction has issued an order the purpose of which is to prepare the teachers for the task that has been imposed on them by organizing short courses of intensive training for the men and women teachers already on duty, thus completing their preparation and giving them the necessary instruction to secure unity of method and action.

Respects Paid by Japanese Scholars to Pasteur

Count Matsuda, ambassador from Japan, accompanied by the high officials of the Japanese embassy, came recently to deposit two beautiful vases, representing Japanese art, in the crypt of the tomb of Pasteur, at the Institut de la rue Dutot. The ambassador has also turned over to Dr. Roux, director of the Pasteur Institute, the sum of 108,000 francs, collected by the scholars and scientists of Japan. In a short presentation address, Count Matsuda gave expression to the admiration and gratitude felt by his compatriots for the work of Pasteur. Dr. Roux, in turn, expressed his thanks in the name of his colleagues and emphasized the fact that Japan was one of the nations which had understood how best to apply the discoveries of Pasteur, not only for the protection of public health but also for the progress of their industries, especially the raising of silkworms, which is of such great economic importance for the country. He also referred to the valuable contributions to science made by Japanese scientists, several of whom had worked in the laboratories of the Pasteur Institute at Paris.

The League Against Cancer

The Franco-Anglo-American League against cancer has just held its annual general assembly under the chairmanship of M. Paul Strauss, minister of public health, assisted by M. Justin Godart, president of the league; the duchess of Uzès; Professors Hartman and J. L. Faure, and others. Minister Strauss delivered the first address, in which he emphasized that in this combat which we must wage with energy against cancer, the ravages of which are on the increase, there is room for various types of activity, but that it was important that all good endeavors be directed by one idea and a common program. M. Justin Godart announced the creation in Spain of an organization similar to the Franco-Anglo-American League, and expressed his satisfaction at seeing evidence of an awakened internationl interest in the movement. The final address of the conference was given by Professor J. L. Faure, who spoke on the surgical treatment of cancer.

BELGIUM

(From Our Regular Correspondent)

May 3, 1923.

Reorganization of Public Health Service on the Congo

With a view to securing a larger number of physicians for the Congo colony, the minister for the colonies has recently completely reorganized the public health service on the Congo. In accordance with the new royal decree, the direction of the public health service has been placed in the hands of the governor general, and in the several provinces the responsibility rests on the vice governor generals. The personnel of the public health service comprises the physicians, pharmacists and the native and European assistant physicians. The physicians are divided into three classes: the directing physicians, public health physicians and laboratory physicians, some of the physicians having a fixed residence, others being itinerant. As the essential condition of appointment, candidates must have successfully passed the final examination of the Ecole de médecine tropicale or must hold a diploma of a school of tropical medicine. In order to be in line for advancement, a physician must give evidence of special knowledge in matters pertaining to public health in the tropics. Medical assistants are, in part, Europeans and, in part, native physicians. In order to secure an appointment, a native must be the holder of a diploma issued by a medical school in the colony.

Industrial Diseases

I have on several occasions called attention to the activities of public health and labor organizations in the campaign against industrial diseases, which, up to the present time, have not received the same official recognition as industrial accidents.

Before the Society of Legal Medicine of Belgium, Dr. de Laet has developed a plan that he recommends for the study of industrial diseases and for the organization of the campaign to combat them: (1) the institution of observations on the ground, which may be entrusted to the factory physician; (2) the creation of institutions for thorough examinations, treatment and the centralization of studies, which will give rise to the clinic of industrial diseases, and (3) the establishment by legal enactment of the factory physician and the clinic for industrial diseases, the provision of modes of indemnification, and a division of the burden, which would result in legislation protecting workmen against industrial diseases.

An advance draft of a law, published in 1920, provides for the indemnification of the workman who is the victim of a recognized industrial disease, according to the degree to which he is temporarily or permanently incapacitated from work. It regulates the details of payment, and states the conditions that give rise to a claim. It provides for the creation, under the name of Caisse d'assurance contre les risques de maladie professionelle, of a fund for the purpose of providing for the payment of allocations due in connection with cases of recognized industrial disease. The fund, according to the draft, will derive its resources in part from the state and in part from the heads of the establishments in whose industries recognized industrial diseases are wont to arise.

Unfortunately, in these times of financial stress this proposed law runs the risk of being deferred indefinitely. For this reason, Dr. de Laet, in face of the danger which is becoming more and more threatening, has a proposal that he thinks will effect a prompt solution of the problem. Since the workmen cannot hope, within the immediate future, to obtain any considerable aid from the public authorities, they might possibly do well to establish a mutual aid system. Their large unions have preferred to establish *cliniques de travail* (industrial clinics) themselves rather than wait for the authorities to create them. In the same manner, why cannot the *caisse d'assurance* (the insurance fund), provided for in the proposed law, derive its resources from the labor unions and the employers, together with a very moderate subvention from the state? Even though this solution were only temporary, it would have at least the great advantage of furnishing adequate care and compensation to sufferers from industrial diseases.

Belgium as a Radium Center

Since Belgium has become one of the foremost radium-producing countries, it was only natural that the Société médicale du radium should be formed. This society was founded for the purpose of supplying its members with radium in the most up-to-date form of applicators and in sufficient quantities so that it can be applied according to the actual indications.

Since the handling of radium requires special scientific training, with the view to contributing by mutual instruction to the avoidance of all mishaps that are liable to occur in the application of this new method of treatment, and, for the purpose of demonstrating what this new therapeutic weapon can accomplish, the society has organized a series of lectures, and it proposes also to collect and to publish from time to time the various articles written by its members. The first number of this publication, the *Annales de la société médicale belge*, has just appeared in excellent format, as put out by the Imprimerie médicale et scientifique.

The Treatment of Trypanosomiasis on the Congo

From previous accounts, it is well known that trypanosomiasis is the principal scourge with which the people living in the Belgian Congo region have to contend. This affection, which is not only of human but also of animal origin, plays a considerable part in the progress of colonization. The campaign undertaken against the disease, to which frequent reference has been made, continues to be carried on in a methodical manner and with increased success as experience grows. Speaking before the Société des sciences médicales at Brussels, Dr. Broden gave recently some interesting details in regard to this campaign on the Belgian Congo. It consists primarily in mechanical prophylaxis directed against the agent of transmission, *Glossina* and other hematophagous flies, and in chemical prophylaxis: sterilization of virus carriers, both man and animal.

Under present conditions, the fight against *Glossina* can be only indirect and strictly local. All efforts must be directed toward chemical prophylaxis: sterilization at one sitting is not possible as yet, but sterilization in several stages can be carried out.

Attempts at active vaccination have not as yet given practical results. However, in certain cases, a natural or acquired resistance to certain trypanosomes may be noted in certain animals and in some persons.

Pulmonary Collapse Therapy in Tuberculosis

Recent discussions which had their origin more especially in Germany, as the result of communications by Sauerbruch on the subject of extrapleural rib resection, have found an echo in Belgium, where M. Olbrecht has made a special study of "pulmonary collapse therapy." Comparing it with the pneumothorax method of Forlanini, he holds that it is indicated in (1) cases of tuberculosis sufficiently grave to justify the assumption that a cure will not be effected by the usual treatment, and (2) cases of unilateral tuberculosis with cavitation, with torpid lesions progressing slowly. Certain writers consider the caseation as a contraindication. One begins by performing a pneumothorax. If the pneumothorax does not bring about the desired compression, thoracoplasty is indicated; it is also indicated when, in pursuing a waiting policy, one has put off the institution of a pneumothorax or has neglected to maintain it. In such cases the pleura is adherent, and nothing short of thoracoplasty can effect a collapse of the lung. The same is true in case there are cavities and a purulent discharge following pneumothorax, for, in that case, the pleural wall of the cavity may ulcerate and a communication may be established between the cavity and the empyema. The results of this method are still characterized by uncertainty, and it would be well to note carefully that by means of this intervention one may secure approximately 30 per cent. of successful results, 30 per cent. of ameliorations, 25 per cent. of negative results and 25 per cent. of aggravations.

Nonmedical Productions of Physicians

The Cercle médical of Antwerp, of which Dr. Tricot Royer is president, took an original step recently, on the occasion of the conference of the Société internationale d'histoire et de médecine, when it collected an exhibit of works of art and of literary and musical productions of which Belgian physicians were the authors. All these works are exhibited in the salons of the Maison des Médecins at Antwerp.

The Red Cross Society of Belgium

The activities of the Red Cross Society have not died down since the war, but, on the contrary, through the energy of its president, Dr. Depage, it is multiplying its efforts in all the branches of public health work and hospital organization. As evidence of its vitality, it has just begun the publication of a new review which is to serve as a connecting link between the various local and provincial branches

throughout the country. This monthly review bears the title *La Croix-Rouge de Belgique*. Various interesting articles show the different branches of its activity. The program of the society in time of peace is discussed by Dr. Depage himself. The Union internationale de secours aux enfants gives an account of the efforts put forth in Russia in combating the famine. The bulletin also enumerates the different services of the Red Cross that are functioning at the present time: (1) the excellently equipped surgical clinic at Brussels; (2) the radium institute reserved exclusively for the indigent and for persons of moderate means who would be unable to stand the expense of radium treatment; (3) a manufacturing establishment for prosthetic apparatus for the benefit of disabled soldiers and those who meet with industrial accidents; (4) a *laiterie* (dairy) containing a complete equipment for the sterilization of milk by steam; (5) training courses for nurses and ambulance assistants; (6) an autoambulance service for the transportation of patients and wounded, and finally (7) a lingerie shop where refugee Russian women are given employment.

The White Lead Menace

The conference organized by the Belgian Red Cross Society with a view to supporting the universal adoption of the resolutions proposed by the third international conference of labor at Geneva for the protection of workmen against the grave dangers presented by the use of white lead has just adjourned. The conference was honored by the presence of the king, the minister from Switzerland and several other ministers. All the speakers expressed themselves energetically, and demonstrated the absolute necessity of prohibiting the industrial use of this poison.

BERLIN

(From Our Regular Correspondent)

April 28, 1923.

German Surgical Congress

The Deutsche Gesellschaft für Chirurgie held its forty-seventh annual meeting in April. In spite of the very unfavorable economic conditions, the attendance at the congress was good—almost up to normal. The speakers on anatomicopathologic problems were Professor Aschoff, Freiburg; Professor Enderlen, Heidelberg, and Professor Hotz, Basel. According to Aschoff, cholelithiasis is an affection of the extrahepatic biliary passages—mainly of the gallbladder. To understand the pathogenesis, a knowledge of the anatomy and the function of the gallbladder is essential. We must distinguish carefully between the gallbladder proper, whose function it is to inspissate the bile by resorption, and the conduction system, which begins at the neck of the gallbladder. The gallbladder, as compared with the bile ducts, is characterized by its abundance of muscle tissue and its lack of elastic tissue. The cystic duct, which leads from the neck of the gallbladder, may be divided into a proximal narrow portion and a distal wider portion. Similarly, the common bile duct, formed from a union of the hepatic duct and the cystic duct, may be divided into an antrum and the sphincter proper. The passage of the bile from the gallbladder into the cystic duct takes place solely through reduction of pressure. The influence of the nerves on the biliary system must be taken into account. Stimulation of the vagus nerve causes, at first, an increased flow of bile; further excitation of the vagus causes bile stasis. Stimulation of the sympathetic system lessens the tonus of the gallbladder, and causes, therefore, no flow of bile. The essential cause of bile stasis doubtless lies in congenital anomalies of the biliary system, whereas the conditions that are usually incriminated as the cause are only chance causes. Pseudocholelithiasis is without doubt more frequent than true gallstone disease. In the absence of the Stockholm pathologist Berg, Aschoff presented Berg's theory in regard to the purely dysfunctional origin of cholelithiasis, which he himself, however, refuses to accept, inclining rather to Naunyn's theory of the infectious nature of the disease. Enderlen, professor of surgery at the University of Heidelberg, discussed the indications and the technic of the operation for gallstone, and Professor Hotz of Basel recounted the results of this operation. According to the principles that both speakers have agreed upon, the internal treatment of cholelithiasis, extending over a long period, is ordinarily ill advised. For patients in their younger years, an early operation (cholecystectomy) is indicated. An operation should be resorted to after the first attacks. In patients of more advanced years, an operation is indicated only after conservative treatment has failed. An early operation for younger patients is based partly on the fact that a patient has more resistance at the beginning of the disease, and also on the circumstance that the disease process is then confined to the gallbladder, without additional complications. The course of healing takes place under favorable conditions, and the results are correspondingly good. The mortality from the operation is only 4 per cent. As far as possible, the operation should be performed in the interval between attacks; that is, after an acute attack has subsided, unless earlier urgent indications for intervention are noted. During the interval, the mortality is lower and there is a better assurance of complete removal of the gallbladder and the stones. Hydrops of the gallbladder, chronic cholecystitis and gallbladder bile stasis should always be treated surgically, as the apparently benign picture may change suddenly. The loss of the diseased gallbladder is, moreover, not very keenly felt. On the other hand, in the case of patients in advanced years, especially in men, surgical intervention should be based on some urgent indication. After internal treatment has been continued for years, the mortality in cholelithiasis that has begun to affect the deeper tissues is two or three times as great as at the start. As to the operative methods, the speakers held that cystendesis is only rarely indicated; for example, for the occasional removal of lodged stones. Cystotomy is, in general, insufficient on account of the fistulas and the frequency of recurrences, which make a difficult radical operation necessary later. It is, therefore, to be regarded generally as an emergency operation, but, in the presence of difficult anatomic conditions and in the case of weakened patients, it may sometimes be indicated, as it saves some patients from the baneful effects of a forced cystectomy. Cystectomy, however, is sometimes indicated. In cholecystitis and cholelithiasis, the earlier cystectomy can be carried out, the better the results. Choledochotomy is indicated if the diagnosis "stone occlusion of the common bile duct" is made, or if at cystectomy concretions are demonstrated in the choledochus. One should never wait longer than three weeks for the spontaneous passage of the stones. The common bile duct should be opened, if possible, in the supraduodenal portion; only when access to this part is difficult may entrance be gained through the cystic duct. Transduodenal choledochotomy is advisable only in the case of incarcerated stones in the region of the papilla. Unfortunately, the mortality is rather high. Drainage of the hepatic duct is no longer considered as important as it was. Under satisfactory conditions, primary closure of the bile ducts may be used to advantage; but if the walls of the bile ducts are weak and unsound and an ichorous, crumbly mass is found therein, drainage may still be needed. Choledochoduodenostomy, though frequently recommended, is superfluous if the common bile duct is patent. In case of stenoses in the lower portions and at the papilla, choledocho-

duodenostomy may be resorted to. However, it does not protect the patient against recurrences any more than does drainage of the hepatic duct. As Enderlen and Hotz view the matter, the bad results or failures of gallbladder surgery are caused by (1) disturbances that are referred to under the general term "recurrence"; as such we may designate stone recurrence and repeated attacks of cholangeitis; complications of the gastro-intestinal tract and carcinoma are the results of a metastatic stone affection; (2) peritonitis as the most frequently fatal complication; to avert this, it is advisable, as already stated, to perform the operation during the interval between attacks; subserous cystectomy; cystotomy in place of cystectomy in case of difficult removal of the gallbladder, and ample evacuation of the secretion or tamponing in cases in which infection is suspected, and (3) postoperative insufficiency of the vital organs in an organism that is impaired by a long continued infection or through old age.

Professor Küttner of Breslau gave his observations on a peculiar type of disease, hepatargia, or hepatic autointoxication. Prominent symptoms are somnolence and high temperature, occasionally the occurrence of anuria. The manifestations seldom appear as a postoperative clinical picture, provided care is taken. The ingestion of an ample fluid intake and a 3 per cent. infusion of glycogen have been shown to have therapeutic value.

Several speakers recommended anastomosis of the bile ducts with the duodenum, in order to prevent recurrences of cholangeitis. Walzel of Vienna recommends, for the location of stone in the common bile duct, primary suturation of the choledochus with dilation of the papilla. Kirschner of Königsberg emphasized that in every case of operation for gallstone it was important not merely to palpate the common bile duct but to pass the sound through it as well. Floercken reported that he had examined subsequently fourteen patients on whom an operation for stenosis of the duodenal orifice had been performed and had found most of them capable of earning a living.

Medical Films

At the recent congress of the Deutsche Röntgengesellschaft, held in Munich, Groedel of Frankfort-on-the-Main exhibited a film in which the contraction of the human heart was demonstrated in excellent fashion with roentgen rays. Another film that attracted considerable attention was shown at the German surgical congress by which Fedor Krause of Berlin demonstrated an operation on the cerebrum. The operation was performed under local anesthesia on a man, aged 39, suffering from epilepsy, and resulted in complete recovery. The film was taken in the Institute for Medical Cinematography, which is located in the Berlin Charité Hospital and is equipped according to the method introduced by the Berlin surgeon Rothe. In the film could be seen the details of the operation by which the surgeon removed with the chisel that portion of the skull over the left central region of the brain. Then the dura mater was incised, faradic stimulation was applied to the brain, whereby the seat of the affection was exactly determined. The diseased portions were then excised. After the operation, the patient's right arm, right leg and right side of the face were paralyzed, but after four weeks all disturbances had subsided. The film that was taken four months after the operation showed that the general condition of the patient was excellent. As general anesthesia was not employed for the intervention, the patient could note and report his observations during the operation. According to his statement, he felt no pain during the operation on the brain; all he noticed was that something was the matter with his fingers—that they moved without any voluntary action on his part.

Marriages

CHARLES YOUNG BIDGOOD, Baltimore, to Miss Mary Taylor Carrington, of Danville, Va., April 21.

WILLIAM M. JERMAIN, Milwaukee, to Miss Catherine Schmitt of Fox Point, Wis., April 22.

HOWARD A. LA MOURE to Miss Josephine Mary Fortier, both of Pueblo, Colo., recently.

ROBERT S. HARWOOD, Oak Park, Ill., to Miss Lillian Feurlicht of Chicago, May 23.

LESTER W. MCDEVITT to Miss Doris Tietig, both of Cincinnati, May 17.

Deaths

Richard Hall Johnston, Wilson, N. C.; University of Maryland School of Medicine, Baltimore, 1894; formerly clinical professor of laryngology at his alma mater; member of the Medical Society of the State of North Carolina, and the Medical and Chirurgical Faculty of Maryland; at one time on the staffs of the University of Maryland, St. Joseph's, South Baltimore Eye, Ear, Nose and Throat, Children's, and James Kernan hospitals, Baltimore, and Havre de Grace Hospital, Havre de Grace; aged 52; died, May 13, of chronic nephritis, at a local hospital.

Sidney Johnston Meyers ✠ Louisville, Ky.; Kentucky School of Medicine, Louisville, 1898; professor of medicine and clinical medicine, University of Louisville Medical Department; veteran of the Spanish-American War; served during the World War as lieutenant-colonel, M. C., U. S. Army, in France; on the staffs of the Louisville City, St. Anthony's and Jewish hospitals, and Norton Infirmary; aged 50; died, May 28, at St. Joseph's Infirmary, following an operation.

Frederick William Smith ✠ New York; Syracuse University College of Medicine, Syracuse, 1903; member of the American Urological Association; on the staffs of the New York, New York City and St. Bartholomew's hospitals, New York, Northern Westchester Hospital, Mount Kisco, and the New Jersey State Hospital, Trenton; aged 46; died suddenly, May 24, at Sulphur Springs, W. Va., of pneumonia.

George Vincent Voorhees, Royal Oak, Mich.; Bellevue Hospital Medical College, New York, 1870; formerly vice president of the Michigan State Medical Society, and a member of the judicial council of the American Medical Association, 1892-1895; at one time corresponding member of the Detroit Medical and Library Association; aged 77; died, May 12.

William Harris Cook, Los Angeles; Rush Medical College, Chicago, 1876; served in the Philippine Islands during the Spanish-American War and later as deputy health officer; established boards of health throughout the provinces; formerly surgeon to the National Home for Disabled Volunteer Soldiers, Sawtelle; aged 68; died, May 9.

Joseph Smith Pigall ✠ Chicago; Rush Medical College, Chicago, 1891; Jefferson Medical College of Philadelphia, 1892; formerly professor of internal medicine, Illinois Post-Graduate Medical School, Chicago; for fifteen years on the staff of the West Side Hospital; aged 54; died, May 30, of cerebral thrombosis and arteriosclerosis.

Rufus S. Rice, Rogers, Ark.; St. Louis College of Physicians and Surgeons, St. Louis, 1901; member and at one time vice president of the Arkansas Medical Society; past president of the Benton County Medical Society; for many years served as local health officer; aged 60; died, March 21, of uremia and chronic nephritis.

James Alfred Rawley ✠ Brazil, Ind.; Illinois Medical College, Chicago, 1904; served in the M. C., U. S. Army, during the World War; member of the school board; aged 53; proprietor of the Rawley Hospital, where he died, May 17, of injuries received when struck by a train.

William Henry Coleman, Louisville, Ky.; University of Louisville Medical Department, 1896; member of the Kentucky State Medical Association; formerly adjunct professor and lecturer of materia medica at his alma mater; aged 53; died, May 17, of cerebral hemorrhage.

Arthur Hazelwood, Plainwell, Mich.; St. Louis Medical College, St. Louis, 1866; Civil War veteran; for eighteen years member of the board of health; formerly on the staff of the Butterworth Hospital, Grand Rapids; aged 84; died, May 22, of senility.

William P. Whery, Fort Wayne, Ind.; L.R.C.P.S., Ireland, 1860; formerly emeritus professor of hygiene, state medicine, and gynecology at the Fort Wayne College of Medicine; aged 83; died, May 13, at the Hope Methodist Hospital, of senility.

James Samuel McClellan ✠ Bellaire, Ohio; Medical College of Ohio, Cincinnati, 1880; for twenty years served as secretary of the Belmont County Medical Society; aged 67; died, May 16, at the City Hospital, of chronic nephritis.

Michael Joseph Ready, Washington, D. C.; Georgetown University School of Medicine, Washington, 1905; formerly on the staff of the Georgetown University Hospital; aged 44; died, May 19, following a long illness.

Alfred Poirier ✠ Woonsocket, R. I.; Montreal School of Medicine and Surgery, Montreal, Que., Canada, 1898; formerly on the staff of the Woonsocket Hospital; aged 52; died, May 13, at St. Gabriel, Canada.

Louis Weinstock, Brooklyn; University and Bellevue Hospital Medical College, New York, 1920; aged 25; died, at the Coney Island Hospital, May 23, of a skull fracture, received when trampled by a horse.

Arthur B. Ancker ✠ St. Paul; Medical College of Ohio, Cincinnati, 1882; for forty years served as superintendent of the City and County Hospital, where he died, May 15, of heart disease, aged 72.

James Roane ✠ Yankton, S. D.; Georgetown University School of Medicine, Washington, D. C., 1882; city health officer; aged 63; was found dead in his office, May 17, of heart disease.

John Adam Gault, Lancaster, Wis.; Rush Medical College, Chicago, 1898; member of the State Medical Society of Wisconsin; aged 60; died, May 15, of cerebral hemorrhage, at Milwaukee.

Robert Warren Colquite Green, College Park, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1884; aged 72; died, March 20, of chronic nephritis.

Joseph De Stefano, Chicago; Rush Medical College, Chicago, 1889; aged 58; died, May 31, from the effects of carbolic acid, presumably self-administered.

Benjamin Dobson Rupp, Wahoo, Neb.; Bellevue Hospital Medical College, New York, 1881; also a druggist; aged 64; died, May 18, of cerebral hemorrhage.

A. A. Eddy, Coalcreek, Colo.; Chicago Medical College, Chicago, 1880; aged 80; died, May 13, at a hospital in Canon City, of hemorrhage of the stomach.

Laban Lindley, Paoli, Ind.; Detroit (Mich.) Medical College, 1870; Civil War veteran; also a druggist; aged 77; died, May 5, of heart disease.

Frank Jeter, Indianapolis; Eclectic College of Physicians and Surgeons, Indianapolis, 1891; aged 56; died suddenly, May 20, of heart disease.

R. B. Dodson, Cherry Valley, Ark. (licensed, Arkansas, 1903); aged 67; died, May 19, of heart disease, at St. Joseph's Hospital, Memphis, Tenn.

George Russell Clarke, Atlantic City, N. J.; Temple University Department of Medicine, Philadelphia, 1921; aged 34; died, April 23.

Neva Grosch Mott, Rawlins, Wyo.; Loyola University School of Medicine, Chicago, 1918; aged 30; was shot and killed, May 13.

Albert P. Mitchell ✠ Bolivar, Mo.; Missouri Medical College, St. Louis, 1884; aged 62; died, May 16, at a hospital in Springfield.

Eli Snow Hannaford, Readfield, Me.; Medical School of Maine, Portland, 1869; aged 75; died, May 15, in Springfield, Mass.

Philip H. Leibrock, Mascoutah, Ill.; St. Louis Medical College, St. Louis, 1883; aged 63; died, May 13, of heart disease.

Edmund P. Banning, Dayton, Ohio; Homeopathic Hospital College, Cleveland, 1892; aged 78; died, May 18.

Ulysses Hutson, Christopher, Ill.; American Medical College, St. Louis, 1878; aged 75; died, May 13.

John W. Huffaker, Denver; Pulte Medical College, Cincinnati, 1898; aged 71; died, May 15.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

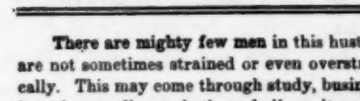
MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Woods V. Tabules.—A number of boxes of "Woods V. Tabules" were shipped by Edward J. Woods of New York City to Louisiana in March, 1919. Many physicians will remember Edward J. Woods as the quack who exploited an alleged cure for alcoholism and another alleged cure for the tobacco habit, both sold on the mail-order plan. Both of these frauds were exposed in THE JOURNAL in 1912 and in 1921 the "tobacco habit cure" fraud was denied the use of the United States mails. Even as long ago as 1912 Woods also had a line of nostrums for rheumatism, catarrh and asthma and a "cure" for blushing, some complexion wafers, wrinkle removers and pile remedies. The government seized a quantity of "Woods V. Tabules" on the ground that they were misbranded. Analysis by the federal chemists showed that the tablets contained zinc phosphid, strychnin and plant extractives, including a laxative drug. The claims made for the tablets were those common to the "weak men" nostrums. For example:

Wonderful Strengthener

Woods' Vigor Tabules



"WORTH THEIR WEIGHT IN GOLD"

See What a Box of Woods' Vigor Tabules May Do!

There are mighty few men in this hustling, progressive age who are not sometimes strained or even overstrained, mentally or physically. This may come through study, business details, worry, "burning the candle at both ends," excitement, bereavement, illness, tobacco, alcohol, coffee, tea, coca cola, too many social

"When there is inability to think clearly . . . use Woods V. Tabules. For nervous debility . . . lack of enthusiasm . . . inability to look others in the eyes, feeling of being conspired against or followed and hounded by enemies, enervation of mind or body, inability to conduct oneself cleverly enough to gain and maintain the affection of one of the opposite sex . . . for these or any other mental or physical condition where real stimulation and energy are required—try Woods V. Tabules."

"An effective aphrodisiac and general stimulant."

These and similar claims were declared false and fraudulent and in May, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 10990; issued Jan. 13, 1923.*]

Lukosine.—The National Drug Company of New York City shipped in May, 1921, a quantity of "Lukosine" which government officials declared misbranded. Analysis of a sample of the article by the Bureau of Chemistry showed that it consisted of a powder containing approximately 80 per cent. of boric acid and small proportions of zinc sulphate, alum, and a salicylate, and with traces of alkaloid, phenol, thymol and menthol, the entire material colored pink. It was labeled as a remedy for gonorrhea, leucorrhea, etc. These claims the government declared were false and fraudulent since the article contained no ingredient or combination of ingredients capable of producing such an effect. In Decem-

ber, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. —[*Notice of Judgment No. 10972; issued Jan. 13, 1923.*]

Eckman's Alterative.—In August, 1922, the United States attorney for the Northern District of Illinois filed a libel for the seizure and condemnation of 150 dozen large-sized bottles and 120 dozen small-sized bottles of "Eckman's Alterative" that had been shipped in April by the Burrows-Little-White Co., of Philadelphia. The government chemists reported that analysis of "Eckman's Alterative" showed that it consisted essentially of 94.4 per cent. water, flavored with clove oil, 3.3 per cent. of calcium chlorid and 2.3 per cent. of plant extracts. The product was falsely and fraudulently labeled so as to create in the minds of the purchasers the belief that it was an effective remedy for bronchial asthma, catarrhal bronchitis and pulmonary troubles, stubborn coughs and colds, etc., whereas "in truth and in fact it contained no ingredients or combination of ingredients capable of producing the effects claimed." In October, 1922, the Burrows-Little-White Co. admitted the allegation of the libel and judgment of condemnation and forfeiture was entered. The court then ordered that the product be released on the payment of the costs and the execution of a $1,000 bond requiring the product to be relabeled under the supervision and to the satisfaction of the Department of Agriculture.—[*Notice of Judgment No. 11049; issued January, 1923.*]

"Eckman's Alterative" may be remembered as a fraudulent "consumption cure" that was exposed in THE JOURNAL, April 27, 1912. It may also be remembered as the nostrum whose exploiters attacked the constitutionality of the federal Food and Drugs Act after they had been found guilty of making false and fraudulent claims. The Eckman concern declared that they wanted "to call in question the power of Congress to prevent a person from making statements or claims concerning the virtue of drugs, whether modest or extravagant" and they expressed the opinion that "an owner, when advertising his drugs, has a right to exploit them and advance opinions concerning the curative properties thereof, notwithstanding the fact that such opinions may be objected to by others, and that he may make claims . . . which to some may appear unreasonable. . . ." The Eckman concern carried its contention up to the Supreme Court of the United States which august body made short shrift of the pernicious doctrine put forward by the "consumption cure" outfit.

Gombault's Caustic Balsam.—The Lawrence-Williams Co., Cleveland, Ohio, shipped in March, 1919, a quantity of "Gombault's Caustic Balsam" which was misbranded. The government chemists reported that analysis showed the product to be a mixture of a fatty oil with approximately 20 per cent. by volume of oil of turpentine. It was falsely and fraudulently represented as an effective treatment, remedy and cure for diphtheria, cancer, corns and bunions in humans and for spavin, founder, broken wind and various other ailments of horses. In December, 1922, the defendant entered a plea of *nolo contendere* and was fined $100 and costs.—[*Notice of Judgment No. 11182; issued April 20, 1923.*]

McGraw's Oil of Life.—A quantity of "McGraw's Oil of Life," shipped by the McGraw Remedy Co., of Little Rock, Ark., in February, 1922, was declared misbranded. The federal chemists reported that analysis showed the product to consist approximately of 95 per cent. kerosene ("coal-oil") and small proportions of turpentine oil, tar oil and camphor, the mixture being colored. The product was falsely and fraudulently advertised as a remedy for kidney and bladder disease, diphtheria, piles, headache, colic, asthma and a number of other conditions. In June, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 11059; issued Feb. 21, 1923.*]

Vital Sparks.—In April, 1920, and May and July, 1921, the Hollander-Koshland Co. of Baltimore, Md., shipped a quantity of "Vital Sparks" which were misbranded. The Bureau of Chemistry reported that analysis showed the preparation to consist of gelatin capsules, each containing a fatty oil, colored red, and a sugar-coated pill of zinc phosphid, damiana and strychnin. Vital Sparks were falsely and fraudulently advertised as a powerful nerve stimulant of value in producing normal functioning of the sexual organs. In May, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. —[*Notice of Judgment No. 11183; issued April 20, 1923.*]

Mydyl Antiseptic Wafers.—Charles S. Ruckstuhl, St. Louis, Mo., shipped in January, 1922, a quantity of "Mydyl Antiseptic Wafers" which were declared misbranded. The Bureau of Chemistry analyzed the sample and reported that the wafers were composed of borax and starch. Claims made on the trade package were:

". . . of great value in the treatment of Vaginitis, Urethritis, Menorrhagia, Endometritis, Parametritis, Cervicitis and Gonorrhea."

These and similar claims were declared false and fraudulent and in November, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 11105; issued March, 1923.*]

Syrup Leptinol.—The Balsamea Co., of San Francisco, shipped in July, 1920, from California to Missouri a quantity of "Syrup Leptinol" which the federal authorities declared misbranded. When analyzed by the Bureau of Chemistry the product was found to consist of *Leptotaenia dissecta* (a plant belonging to the parsnip family), sugar,

Syrup Leptinol
a near specific in Epidemic Influenza and Pneumonia. Improvement apparent after a few hours.
THE BALSAMEA CO.
SAN FRANCISCO, CAL.
Syrup Leptinol
The Respiratory Specific
Rapidly Dissipates Congestions Along the Respiratory Tract
Cut Down Your
PNEUMONIA MORTALITY
SYRUP LEPTINOL
THE BALSAMEA CO.

glycerin, alcohol and water. The nostrum was labeled in part:

"Indicated In Epidemic Influenza . . . Bronchial Asthma, Whooping Cough;"
"Indicated in Pulmonary Tuberculosis, Influenza, Pneumonia, Bronchial Asthma . . . Whooping Cough, Laryngitis."

These claims were declared false and fraudulent since the product contained no ingredient or combination of ingredients capable of producing the effects claimed. In January, 1923, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 11193; issued April 20, 1923.*]

Readers of THE JOURNAL will remember that "Syrup Leptinol" was the subject of a report of the Council on Pharmacy and Chemistry that appeared in this department, June 5, 1920—nearly three years before the publication of the government's report.

Sangvin.—Dr. M. Spiegel & Sons, Albany, N. Y., shipped in January and June, 1922, a quantity of "Sangvin" which was misbranded. Analysis of a sample of the article by the Bureau of Chemistry showed that Sangvin was composed essentially of plant drugs including a laxative drug, sugar, alcohol, glycerin and water. The claims made for Sangvin were many and various and falsehoods regarding its alleged virtues ranged from the vicious to the picturesque. Sangvin was said to purify the blood, strenghten the nerves, overcome lack of ambition and loss of appetite, cure eczema and pimples, overcome sleeplessness, la grippe, kidney disorders and carbuncles and, altogether, "makes you well and strong." Because of the false and fraudulent claims, judg-

ment of condemnation and forfeiture was entered in November, 1922, and the court ordered that the product be destroyed. —[*Notice of Judgment No. 11119; issued March, 1923.*]

Peterson's Ointment.—Peterson's Ointment Co., Inc., Buffalo, shipped in September, 1920, a quantity of "Peterson's Ointment" which was misbranded. Analysis by the Bureau of Chemistry showed this preparation to be a vaseline ointment containing zinc oxid, tannin, carbolic acid and camphor. It was falsely and fraudulently recommended as an effective remedy and cure for eczema, ringworm, broken breasts, scald heads, old sores, ingrowing nails, frostbites, catarrh, ulcers, croup, chilblains, poison ivy, piles and all scalp disease. In November, 1922, the defendant entered a plea of guilty and was fined $25.—[*Notice of Judgment No. 11214; issued May 8, 1923.*]

Correspondence

ETHYLENE AND ACETYLENE AS ANESTHETICS

To the Editor:—In the editorial on the use of ethylene and acetylene as general anesthetics (The Journal, May 12), mention is made of the early works of Lewin, Rosemann and others, who reported marked anesthetic effects obtained by using acetylene on animals. It would be well to point out, however, that these men were working with impure acetylene from crude carbid, which now is known to contain poisonous impurities, particularly phosphin and hydrogen sulphid. In fact, Chuard (*Bull. Soc. chim.* **17**:678, 1897) attributes its effectiveness as an insecticide in certain cases to the phosphin it contains. In view of these facts, we cannot look on the work of these men as a reliable test of acetylene as an anesthetic.

For some months, work has been carried on in the laboratories of physiologic chemistry at the Kansas State Agricultural College on the effects of purified acetylene as a general anesthetic for animals. This work was based on some observations I made about two years ago while preparing purified acetylene in order to study some of its derivatives. As our work here was begun before any announcements had been made of the work of Gauss, and as it bears out his statements in most respects, but differs in some, I wish to call attention to our results.

In the first place, we have used acetylene from calcium carbid only after it has been thoroughly purified by being passed through a sufficient train of wash flasks containing chromic acid and copper sulphate solutions to remove phosphin and hydrogen sulphid. Acetylene from the compressed cylinders also was used, in this case precautions being taken to remove acetone. The oxygen employed was the commercial product obtained by the Linde process.

Mixtures of oxygen acetylene were administered to the animals through a gas-mask arrangement. Our mixture contained from 10 to 25 per cent. of oxygen, the intention being to let the animal have the normal amount of oxygen. In this respect our mixture differs from that of Gauss, who uses 40 per cent. oxygen. In fact, we have positively shown that this high percentage of oxygen cannot be used effectively with some ordinary animals. Most animals quickly show sensitiveness when the percentage of oxygen goes much above 25. This is particularly true of the dog. Animals show varying degrees of insensibility during operations on them, depending on the percentage of oxygen administered with the acetylene. For a prolonged effect, a steady stream of the oxygen-acetylene mixture is administered. As noted by Gauss, breathing is more rapid than usual.

One unusual property of this anesthetic has been noted, and that is the rapid recovery when an animal has been removed to the air. Seldom does it take five minutes for an animal to gain its complete equilibrium, and more often in less than two minutes an animal will be up and around.

The most striking result, however, that we obtained was the entire absence of any after-effects, and it is on this point alone that acetylene most likely will gain ground. After months of work along this line, we have never yet found a case in which even prolonged exposure to the mixture has affected animals of any age. An animal recovers after being under four hours with the same ease as if it had been under four minutes, and with no signs of injurious effects that can be detected.

To those who desire to experiment in this field, it can be said that it seems promising. Some precautions are in order, however. In the first place, the acetylene must be purified. Should the demand call for it, manufacturers would place a pure acetylene on the market. It is hardly necessary to add that, in administering the acetylene mixture, the rate of flow of gas should be fast enough to sweep out the products of respiration. Also, that fire (either spark or flame) must be kept away from the mixture of oxygen and acetylene, as it is more dangerous than ether.

Charles N. Jordan, M.S., Manhattan, Kan.

IDIOSYNCRASY AND ANAPHYLAXIS

To the Editor:—Is idiosyncrasy the same as anaphylaxis? This question is asked often in consultation or by students in the lecture room. Can we interchange these words, using one when we mean the other whether we speak of food, drugs, animal emanations or hypersensitiveness in general? Richet writes:

> Since the effect of a given poison on different individuals cannot be the same, the real difference between individual susceptibility and true anaphylaxis cannot be strictly defined, but there are certain instances of exceptionally marked individual susceptibility or a state of increased sensitivity, which we have no right, as yet, to include in the term of anaphylaxis. Indeed, it is possible by physiologic methods to modify the reaction of an animal in such a way that immediately after the injection of a poison it reacts like an anaphylactized animal.

Dr. Robert A. Cooke writes (The Journal, Sept. 6, 1919, p. 759):

> Given a normal person, any drug exhibited in therapeutic doses manifests a certain normal action, a side action and, in larger amounts, a toxic action, both the normal and the toxic action being more or less definitely fixed, symptomatically, for all individuals of the same species. On the other hand, there are individuals within any species that manifest exaggerated normal and side action for many such reasons as alterations, in rate of absorption, excretion or destruction within the organism, or instability of the mechanism through which some drugs act. . . . These exaggerated normal and side actions and lessened action (or tolerance) should be included under the general heading "idiosyncrasy."

Concluding his article, Cooke insists that "idiosyncrasy" should be distinguished from the word "allergy."

Widal (*Presse méd.* **30**:189 [March 4] 1922; abstr., The Journal, April 22, 1922, p. 1235) also differentiates between anaphylaxis and idiosyncrasy. He describes a few cases, and one case in particular that he had under long observation in which a woman had paroxysmal itching, eruptions, urticaria, febrile periods, spasmodic coryza, hay-fever and asthma, which developed from exposure to pollen, chilling of the skin, ingestion of antipyrin or acetylsalicylic acid, or from an irritation of a polyp in the nose. The chilling of the skin on stepping out of a warm bath was enough to bring on the whole set of symptoms to which she was susceptible. These cases, Widal thinks, demonstrate and prove that the underlying cause of both anaphylaxis and idiosyncrasy is the instability of the colloid balance in the plasma; but he further remarks that while anaphylaxis may be incriminated for some of the manifestations, we must ascribe the others to idiosyncrasy.

It may be that anaphylaxis and idiosyncrasy can be present in the same individual but still, the phenomena which these

terms imply should be distinctly differentiated. The following may serve as an illustration: The physiologic effect of digitalis is to slow down the pulse by its action on the heart muscle, etc. All clinicians of wide experience have undoubtedly noticed that the total amount of digitalis required to produce its effect in some cases is much less than in others; let us say that, on an average, it may take from 2 to 4 drams (7.5 to 15 c.c.). If one encounters a subject whose pulse will slacken at the first dram of the digitalis administration; or if one encounters a reverse case in which the ingestion of 4 or even 6 drams (15 to 23 c.c.) will not bring the pulse down, other things being equal, we consider such types as having an idiosyncrasy toward digitalis, there being no anaphylaxis about it.

Similar differences are seen with belladonna, magnesium sulphate, strychnin and calomel. In general, we have the effect of each drug for every individual to a normal action, enhanced or exaggerated normal, a retarded normal and a toxic action. The quickened normal and the retarded normal physiologic effect when observed would best be expressed by the term idiosyncrasy, while an anaphylactic reaction is altogether an abnormal or a foreign action.

I would like to hear the opinion of our medical authorities on this subject. In the medical literature for the last few years the words anaphylaxis and idiosyncrasy, or allergy and idiosyncrasy have been used synonymously.

It should not be understood that we have no drug anaphylaxis or allergy. Anaphylactic reactions have been produced in animals with different drugs, such as the reports of Bruck with iodoform and antipyrin; of Naniloff with sodium bromid and quinin, and of others with iodids, copaiba and atropin. All the laboratory investigators have proved that a great variety of substances, not only protein, but also alkaloids, as mentioned above, are capable of producing anaphylactic phenomena.

ALEXANDER STERLING, M.D., Philadelphia.

METHOD OF STATING BLOOD SUGAR DETERMINATIONS

To the Editor:—I should like to suggest that an effort be made to change the method commonly used of expressing blood sugar as percentage values.

In discussion with several men, I find that the tendency has been to change into the form used for other blood chemical determinations, milligrams per hundred cubic centimeters. This would make the matter easier to write out and would make blood sugar conform with blood urea and other nitrogenous constituents of the blood.

SOLOMON STROUSE, M.D., Chicago.

"THE SIZE OF DROPS"

To the Editor:—In prescribing tincture of digitalis, a simple way of getting around the drop difficulty is to order a 30-minim vial so that each dose, if large, may be measured, or a day's dosage may be bottled in the vial by the patient, and divided as directed.

H. B. AITKENS, M.D., LeSueur Center, Minn.

State Boards of Health.—New Orleans having lost 8,000 victims by cholera in 1832 and in 1849-1850, out of a population of about 55,000, and anxious to maintain a quarantine, secured the enactment of a law in 1855 for the establishment of a state board of health. In 1869 a more comprehensive board was established in Massachusetts, followed in 1870 by California. Now nearly all the states have followed the example.—Kober: *Pub. Health Rep.* **38**:725 (April 6) 1923.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PREPARATION OF ANTIGEN

To the Editor:—I am anxious to know the method for preparing the antigen used in the precipitin test for syphilis. J. E. S., China.

ANSWER.—Beef or pig hearts are freed from fat, fiber and blood vessels, and passed several times through a meat grinder. The ground muscle is spread on a platter and dried at room temperature by being placed in front of a revolving fan. The dried material is broken up into small pieces and passed several times through a coffee grinder, or ground in a mortar until very fine. A given quantity of this material (about 50 gm.) is placed in a 500 c.c. Erlenmeyer flask, and sufficient ether is added to make a layer of about 1 inch above the dried muscle. Extraction is permitted for about twenty-four hours at icebox temperature, when the supernatant ether is poured off and replaced with fresh ether. This process is repeated several times, until the supernatant ether is water clear. The ether is then filtered off and the heart muscle dried at room temperature (by being spread on a paper) until free from the odor of ether. The ether is discarded. Twenty-five grams of dried material is placed in a 250 c.c. Erlenmeyer flask, and 125 c.c. of 95 per cent. alcohol is added. This is extracted nine days in icebox, and one day at room temperature. The alcohol is filtered off, and 25 c.c. is cholesterinized by the addition of 100 mg. of cholesterin. It is dissolved by being warmed in a water bath and shaken. The cholesterinized antigen is allowed to stand twenty-four hours before being used. The noncholesterinized antigen may be used at once.

The cholesterinized antigen is highly sensitive; the noncholesterinized one is less sensitive, particularly in treated cases.

IRRADIATION IN ACNE ROSACEA

To the Editor:—What is the present status of light or ray therapy in the treatment of acne rosacea? How effective is it and how best applied? M.D.

ANSWER.—One can get rid of the folliculitis of acne rosacea with roentgen rays, but not of the hyperemia. The agent is not nearly so useful in acne rosacea as it is in ordinary acne. Light therapy is of little or no use in acne rosacea, and roentgen rays are not to be particularly recommended in it. It is better treated by measures described in the textbooks for its treatment. If roentgen rays are used, small doses should be given at intervals of several days, depending on the dose, until one or two erythema doses have been given, the number depending on the time of exposure. For example: Using the MacKee and Remer measurement, a safe treatment would be by giving ¼ skin unit once in five days or a week until 2 units are given; or ½ skin unit once in two weeks until 2 units are given. This should not be undertaken unless a man knows how safely to give small doses of roentgen rays.

SENSITIZATION TO ARSPHENAMIN

To the Editor:—Why is it that after eighteen injections of neoarsphenamin without a reaction, a patient broke out with large red blotches on the chest, back and thighs, swelling of the hands, and itching at the site of eruption? This all took place twenty-four hours after the giving of the nineteenth, twentieth and twenty-first injections. The eruption usually lasted from four to seven days, but it persisted for fifteen days after the twenty-first injection. The appetite was markedly increased for two days following, and then dropped to normal. The itching lasted only for a day; there was no nausea or vomiting. The patient felt well throughout the eruption stage. The urine, blood pressure and heart were normal. Q. T. O.

ANSWER.—The reason is that the patient had acquired a sensitization to arsphenamin or neo-arsphenamin and was getting a toxic dermatitis from it, as occasionally happens. This is a warning of danger. These attacks of erythema are not infrequently followed by a general exfoliative dermatitis, and by a general intoxication which may prove fatal. Unless the necessity for the use of arsphenamin is very insistent, symptoms of this sort should cause the discontinuance of the drug; and its use later, if at all, should be only with great caution. It is safer in such cases to make further treatment consist of mercury and the iodids.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 10. Chrm., Dr. Samuel W. Welch, Montgomery.
ARIZONA: Phoenix, July 3. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
CALIFORNIA: San Francisco, July 9-12. Sec., Dr. Charles B. Pinkham, 908 Forum Bldg., Sacramento.
COLORADO: Denver, July 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
CONNECTICUT: New Haven, July 10. Sec. Eclectic Board, Dr. James E. Hair, 730 State St., Bridgeport. Sec. Homeo. Board, Dr. E. C. M. Hall, 82 Grand Ave., New Haven.
CONNECTICUT: Hartford, July 10-11. Sec., Dr. Robert L. Rowley, 79 Elm St., Hartford.
DELAWARE: Wilmington, June 19-21. Sec., Dr. P. S. Downs, Dover.
DISTRICT OF COLUMBIA: Washington, July 10-12. Sec., Dr. Edgar P. Copeland, 104 Stoneleigh Court, Washington.
FLORIDA: Daytona Beach, June 11-12. Sec., Dr. W. M. Rowlett, Tampa.
ILLINOIS: Chicago, June 18. Supt., Mr. V. C. Michels, Springfield.
INDIANA: Indianapolis, July 10. Sec., Dr. Wm. T. Gott, Crawfordsville.
KANSAS: Kansas City, June 19. Sec., Dr. Albert S. Ross, Sabetha.
KENTUCKY: Louisville, June 12. Sec., Dr. A. T. McCormack, State Board of Health Bldg., Louisville.
MAINE: Augusta, July 10-11. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.
MARYLAND: Baltimore, June 19-22. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.
MARYLAND: Baltimore, June 12-13. Sec. Homeo. Bd., Dr. E. H. Wilsey, Chesapeake City.
MICHIGAN: Ann Arbor, June 12. Sec., Dr. Beverly D. Harison, 601 Stroh Bldg., Detroit.
MISSISSIPPI: Jackson, June 13-14. Sec., Dr. W. S. Leathers, University.
NEW JERSEY: Trenton, June 19-20. Sec., Dr. Alexander MacAlister, State House, Trenton.
NEW MEXICO: Santa Fe, June 18. Sec., Dr. R. E. McBride, Las Cruces.
NORTH CAROLINA: Raleigh, June 25-29. Sec., Dr. Kemp P. B. Bonner, Raleigh.
NORTH DAKOTA: Grand Forks, July 3-6. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.
OKLAHOMA: Oklahoma City, July 10-11. Sec., Dr. J. M. Byrum, Shawnee.
OREGON: Portland, July 3. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.
PENNSYLVANIA: Philadelphia and Pittsburgh, July 10-14. Preliminary Examiner, Mr. C. D. Koch, 422 Perry Bldg., Philadelphia.
RHODE ISLAND: Providence, July 5-6. Sec., Dr. B. U. Richards, State House, Providence.
SOUTH CAROLINA: Columbia, June 26. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
SOUTH DAKOTA: Deadwood, July 17. Dir., Dr. H. R. Kenaston, Bonesteel.
TENNESSEE: Memphis, Nashville and Knoxville, June 15-16. Sec., Dr. Alfred B. DeLoach, 1230 Exchange Bldg., Memphis.
TEXAS: Austin, June 19-21. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.
UTAH: Salt Lake City, July 5. Dir. of Regis., Mr. J. T. Hammond, State Capitol, Salt Lake City.
VERMONT: Burlington, June 20-22. Sec., Dr. W. Scott Nay, Underhill.
VIRGINIA: Richmond, June 19-22. Sec., Dr. J. W. Preston, 720 Anchor Bldg., Roanoke.
WASHINGTON: Seattle, June 19. Sec., Mr. Wm. Melville, Olympia.
WEST VIRGINIA: Martinsburg, July 10. Sec., Dr. W. T. Henshaw, Charleston.
WISCONSIN: Milwaukee, June 26-28. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

THE NORTH CAROLINA EXTENSION PLAN

An Experiment in Postgraduate Medical Teaching

F. DENNETTE ADAMS, M.D.
Lecturer in Medicine, University of North Carolina Extension Division
WASHINGTON, D. C.

In an effort to determine whether it might be of any value to the medical profession in the state to make it possible for a large number of physicians to obtain postgraduate instruction without leaving their own communities, the state of North Carolina, in the summer of 1916, conducted postgraduate courses in pediatrics in twelve of its larger centers. The plan was devised by Dr. W. S. Rankin, the state health officer, and was carried out through the combined efforts of the state board of health and the medical department and extension division of the University of North Carolina. Pediatrics was the field chosen, because at that time there were but few trained pediatricians in the state, the infants and children being mostly under the care of general practitioners, and it was felt that instruction of these men in the refinements of diagnosis and treatment of diseases peculiar to the young might be of assistance in the board of health's statewide campaign for the reduction of infant mortality. In addition, since the project was an innovation and an experiment, it was believed that just how much benefit had been derived from the work could be more readily determined from the physicians themselves than would have been the case had a more generalized subject been chosen; for practically all were admittedly weak in pediatrics, whereas there were all degrees of ability and training in the general fields of medicine and surgery.

DETAILS AND DEVELOPMENT OF THE PLAN

Two instructors were appointed. Each was assigned to a circuit of six centers, which he covered in rotation every week for four months, a class thus being held in each city once a week. The classes were composed of physicians residing in these centers and their surrounding rural communities. The work in the eastern part of the state was conducted by Dr. Lewis Webb Hill of Boston, and in the western section, by Dr. J. R. Gerstley of Chicago. The first part of an exercise was devoted to a talk on some phase of pediatrics, the second part to clinical teaching, the subjects being patients who were brought in by members of the classes for suggestions as to diagnosis and treatment.

From the standpoint of the physicians who had attended the meetings, the state authorities and the instructors, the results of the experiment seemed to justify its repetition, and, at the close of the summer, plans were under way for renewal of the work elsewhere in the state the following year. The war intervened, however, and it was not until the fall of 1921 that definite steps were taken toward further experimentation along similar lines. Since the problem was one primarily of education and only secondarily of public health, it was considered to be more the concern of the state university than of the board of health, and, as a result, it was undertaken entirely by the university. The actual organization of the classes, and the planning of the instructors' routes and other executive work was carried out by the university extension division, while the more strictly medical problems, notably the selection of the instructors and the outline of the work, were in the hands of the dean of the medical school, Dr. I. H. Manning.

In a state in which the population is largely rural, or in relatively small communities, as is the case in North Carolina, it is obvious that by far the greater number of physicians are general practitioners, and that, of necessity, with the exception of one or two of the larger cities, medicine has not reached the degree of specialization that obtains in the states farther north. At present, there is no school of clinical medicine in the state. There has been none since 1914, when the Charlotte Medical School closed its doors. Students of medicine can obtain the first two years of the accepted four-year course at the medical school of the state university, or at Wake Forest College, and, although plans are being formulated for the installation of a four-year course at the former institution, students from both schools are now forced to seek their last two or clinical years outside the state. General public hospitals are rare, making the teaching of clinical medicine difficult. As a result, clinical teaching centers do not exist. There has been no stimulus for their development—and there have been no funds. Medical progress has suffered accordingly. The practicing physicians have no large clinic within reach to which they can refer their more complex cases for study and treatment, and they themselves have no center toward which they can readily migrate for postgraduate instruction. It is next to impossible for them, under such circumstances, to keep pace with the trend of medical thought.

Of course, those who are fortunate enough to be able to leave their practices find it to their advantage to devote a few weeks each year to visiting clinics or taking postgraduate

courses elsewhere in the country. These men are able to keep well posted. But for the majority, particularly those in the rural communities, such a practice is well-nigh out of the question. It is the aim of the University of North Carolina to reach these men—to bring to them instruction which they cannot go out and seek; and it was with this purpose in mind that the postgraduate extension work was reinstituted last summer.

The opinion prevailed that a general subject would have a wider appeal and would be a more logical choice for a renewal of the experiment than would one of the specialties, and internal medicine was consequently selected. The plan of work was similar to that used in 1916. Two circuits of six cities each, one in the eastern and one in the western part of the state, were selected, and an instructor was assigned to each. The towns composing a circuit naturally had to be within a relatively small area in order to minimize travel time for the instructor. The first group, comprising Durham, Selma, Goldsboro, Wilson, Rocky Mount and Tarboro, was in charge of Dr. Frank A. Chapman of Chicago; the second, composed of Ashboro, Greensboro, High Point, Lexington, Salisbury and Charlotte, was assigned to me. The instructors were brought on from distant cities (I was residing at the time in Boston), because of the fact that the university was unwilling to expose itself to charges of exploiting an individual by bringing in as a teacher a man from a nearby center who, conceivably, might later be in a position to attract patients away from their own physicians.

The organization of the classes, as stated above, was undertaken by the University Extension Division. Although this type of work represented a new departure in medical teaching, it might nevertheless be supposed that there would have been a ready response on the part of physicians to avail themselves of the opportunity offered. As the university wished to reach as many men as possible, and had to consider finances, it was decided to hold classes only in localities in which an enrolment of at least twelve could be guaranteed in advance.

The expense incurred in organizing the courses—approximately $300—was met by the University Extension Division, and not charged to the physicians, whose tuition fees were used only to cover actual salaries and traveling expenses of the instructors. This was made clear in advance. Nevertheless, difficulty was experienced in some quarters in obtaining enrolments sufficiently large to make the work possible. The idea was new; the field was unexplored, and the members of the profession seemed unwilling to invest in an unknown quantity. I am indebted to Mr. Chester D. Snell, director of the University Extension Division, who personally organized the classes, for the following outline of his part in the work:

"In the fall of 1921, I sent a letter outlining our scheme to the secretaries of all the county medical societies in the state, with the request that they bring our proposition up for discussion at their meetings, and report back to me. The best responses came from the societies which had taken the work in 1916. In the spring of 1922, I obtained a list of all the doctors within 50 miles of the six selected cities, in the two sections, and sent to each an explanatory letter and an application blank. About forty were enrolled in this way. Next, I interviewed personally a large number at the annual convention of the state medical society, which occurred later in the spring, and, following this, I made a personal office-to-office canvass, eventually signing up enough to make the total for the two circuits 180. Just before the first meeting, I sent letters to all of the doctors who had been on the former mailing list, reminding them of the dates on which the first meetings were to be held and again soliciting their cooperation. Exactly 198 physicians enrolled, out of a total of about 450 approached. About 85 per cent. of the general practitioners could be classified as interested or enthusiastic when first seen. The main difficulty in getting an early response was due to the fact that when I made my field trip, I could not announce the names of the instructors, as they had yet to be selected. Difficulty was occasionally experienced in overcoming, on the part of the more skeptical, a tendency to believe that the university was attempting to 'put something over'; but we were usually able to meet this attitude successfully by a thorough explanation of our plan. As further evidence of good faith, we promised a refund to those enrolled, in case our receipts more than covered the instructors' expenses. Each physician paid $30 for the series and later received a refund of over $3. I believe that, in the future, less difficulty will be experienced in organizing similar classes, for the work is now so firmly established that it should sell itself."

CHOICE OF SUBJECTS

The university stipulated that each exercise should approximate two hours in length and that it should comprise a lecture and a clinical demonstration. It was suggested that "practical, every-day medicine" would be most acceptable, but otherwise the instructors were given absolute freedom in the conduct of their courses. The problem, therefore, which confronted me on my arrival in North Carolina was not simple. I was to attempt to carry out a type of postgraduate instruction as yet almost untried. I was to have in my classes physicians of all ages, of all grades of training and varying degrees of experience, from those recently graduated from some of the best schools in the country, to those whose actual medical education had been received in schools of less exacting standards, or who, since graduation, had had but little opportunity of obtaining further instruction. I was to meet, in the larger communities, men who were devoting themselves to some particular field and doing highly specialized work and, at the same time, in both larger and smaller places, general practitioners, the exacting requirements of whose practices had cost them the opportunity of keeping pace with present-day medicine. Quite obviously, lectures which might be of value to one group would be well-nigh worthless to another. Instruction in the fundamentals of history-taking and physical examination was needed by some; to others, time spent in listening to discussions of this nature would be wasted. The men doing specialized medicine, most of whom make frequent trips to the best clinics and otherwise keep pace with advances in medicine, would prefer discussions of recent investigative work and its relation to diagnosis and treatment. But instruction along such lines would be of little value to the average practitioner, whose laboratory and hospital facilities are limited. Anything more than a mere outline of the uses of basal metabolism determination, of blood chemical findings or pneumococcus typing, for example, would be of interest to but few listeners. Certain physicians would prefer to have most of the time devoted to diagnosis, others to therapeutics. In other words, the problem which presented itself was that of addressing six classes, totaling more than a hundred physicians, of diversified interests and varying degrees of ability and skill, and having each individual, at the end of the course, feel that his time had not been ill-spent.

Under such circumstances, it seemed to me that the best results could be obtained by selecting a number of common medical conditions and discussing them from the standpoint of etiology, pathology, diagnosis and treatment. In this way a certain amount of time could be devoted to the fundamentals of history, physical examination and laboratory diagnosis, and the more intricate diagnostic methods and special forms of treatment could be worked in as occasion demanded. The greater part of each talk was devoted to fundamentals, for the course was planned, as has been previously pointed out, especially for the benefit of those who had been unable to keep in touch with medical centers and consequently felt the need of "brushing up."

The subjects selected and the order in which they were presented were: (1) Lobar pneumonia; (2) chronic nontuberculous lung diseases; (3) epidemic (lethargic) encepha-

litis; (4) endocarditis and allied conditions; (5) angina pectoris and syphilitic aortitis; (6) cardiac irregularities and effort syndrome; (7) gastric ulcer and carcinoma; (8) constipation and visceroptosis; (9) nephritis; (10) diseases of the blood; (11) diseases of the endocrine glands, and (12) empyema and other complications of pneumonia.

This program, no doubt, is open to criticism, but it must be borne in mind that only a fraction of medicine can be touched on in a series of twelve talks, and that an effort was made to pick out subjects in which mistakes in diagnosis not infrequently occur. Furthermore, other common diseases were discussed incidentally in connection with the differential diagnosis of some of those listed. Typhoid fever, for example, came up for discussion in connection with lobar pneumonia, encephalitis, endocarditis and empyema; tuberculosis in connection with the same diseases, and the various types of meningitis in connection with pneumonia and encephalitis. It might be suggested that empyema should have been omitted, as it is primarily a surgical condition; but it was introduced into the series because the diagnosis usually lies with the medical man and because, while resident physician in charge of the pneumonia service at the Boston City Hospital, I had been impressed by the frequent failure of practitioners to recognize this common complication of pneumonia.

As time went on and I had the opportunity, by means of the clinics, to observe the work of the physicians in the groups, I found that I was automatically devoting more of each lecture to pathology and diagnosis at the expense of treatment. There was a weakness in pathologic training, or, at least, in the application of knowledge of pathology, and in the ability to arrive at a diagnosis by deduction based on knowledge of this subject, once the important features in history and physical examination had been worked out. Stress was laid on the importance of obtaining a careful history, of following out leads which on the surface seemed of little significance, of bringing to light recollections of past symptoms, long since forgotten, and of seeking out facts which might have a bearing on the solution of the problem at hand. The same held true with regard to physical examination, the advantage being constantly pointed out of searching for signs of a condition which, on the basis of history, might conceivably be present, as, for example, the small area of dulness and diminished breathing in early lobar pneumonia, or the short diastolic murmur in early aortitis. There also arose the necessity of frequently laying stress on the fact that disease often varies in its manifestations and is seldom in exact accord with the so-called "typical textbook picture." Efforts were made to focus attention not on the typical, but on the atypical; not on the obvious, but on the obscure. And, finally, there was the endeavor to rationalize the conception of the value of roentgenologic and laboratory examinations by showing how they should be taken into consideration along with history and physical findings and by pointing out that their results are rarely adequate unless interpreted in the light of information acquired by the other methods.

CLINICAL WORK

The original plan outlined by the university for the clinical part of the program was that cases should be shown, after each lecture, which would demonstrate points under discussion. The subject of each week's talk having been announced in advance, certain physicians would be called on to bring in, for clinical purposes, patients suffering from the disease under consideration. With the end in view of having the clinics well supplied, the physicians, when first enrolled, were requested to sign agreements to supply clinical material for at least two exercises. Most of them did so, but this system failed to work out satisfactorily. Many of the physicians came from distances which made it impracticable for them to bring patients; frequently no patient suffering from the disease under consideration was available, and finally the members of the classes seemed more anxious to bring to the clinics cases concerning which they were in doubt rather than those that presented no diagnostic or therapeutic problems.

The failure of this specific plan to materialize did not, however, cause the clinical part of the work to be abandoned. A wealth of material was supplied, but the patients were brought in for suggestions as to diagnosis or treatment, irrespective of their relation to the subject of the day. Since the study of these cases was of more value to classes and instructor alike, this system worked out to the satisfaction of all concerned. The number of patients seen during a clinic varied from one to as high as ten, with an average of three or four. Unfortunately, no records were kept of the number of cases or their ailments. As a general rule, all who were brought in were seen, but occasionally an unusually large clinic, or one or two patients whose examinations were lengthy, made it necessary to postpone a few until the following exercise. In several instances, persons presented themselves for examination without having first consulted one of the local physicians. They had heard that a free clinic was in town and were anxious to avail themselves of the services of the visiting physician. These individuals were not examined for two reasons: First, such a procedure, once started, would have swamped the clinic with undesirables; second (and more important), the university took the stand that the course was for the benefit of the profession, and consequently those in charge were particularly careful to avoid having the university subjected to charges of having its representatives in competition with the local physicians. In addition to the patients studied in the clinics, a few were seen in consultation in their homes, when, for some adequate reason—usually physical condition—it was impossible for them to reach one of the clinic centers. Where indicated, all cases were followed up and reports of their progress given out from time to time.

This system kept the clinics well supplied with difficult and obscure cases, and as a result there was greater interest on the part of all concerned. In no instance did the instructor see a case prior to the initial appearance of the patient at the clinic, each being studied, as far as possible, in the presence of the class. Consequently, the members had the opportunity of observing the instructor's method of approaching a case, of noting the emphasis which he placed on a careful, complete history and painstaking physical examination, and of following him through the mental process of piecing together the facts and the line of reasoning by which he arrived (or failed to arrive) at a diagnosis.

DISADVANTAGES

The disadvantages of this type of work are quite apparent. Attempts to obtain adequate histories from patients in the presence of audiences not infrequently proved futile. Patients were naturally nervously upset at being interviewed by a stranger and the presence of audiences only intensified their mental discomfort. It caused a tendency on the part of many to supply answers which they believed the instructor was seeking, and thus made it unusually difficult to work out obscure and forgotten details in their stories. When a history was long and tedious, as so many are, the difficulty was further increased by a natural and quite excusable restlessness on the part of the listeners.

Many present needed no lessons in history-taking; those who did found repetition irksome. The same held true with regard to physical examination, especially since the size of the classes rendered individual demonstrations of abnormal findings quite impracticable. Lack of time was another handicap. Scrupulous work is seldom possible when more than two patients must be seen within an hour. Under ordinary

circumstances, shortcuts are rarely justifiable; in the classroom never. Yet instances arose when it was impossible to avoid them if all patients were to be seen. In the future, if the work is continued, arrangements must be made to limit the number of cases admitted to each exercise.

Difficulty was encountered because of lack of laboratory facilities. Urine and hemocytologic examinations were usually available, but it was sometimes difficult or impossible to obtain chemical examinations of the blood, adequate bacteriologic examinations or roentgenologic examinations.

Among the members of the classes, the attitude prevailed (and with justification) that the instructor should commit himself to a diagnosis on the evidence at hand and not attempt to bring into play diagnostic methods not available to the physicians in the community in which the cases were presented (excellent training for the instructor). There was also the disadvantage of usually seeing a patient but once and of not having at hand information relative to the previous course of his ailment. But in the cases in which a definite diagnosis seemed impossible, the instructor was sometimes able to point out and discuss further methods of study which, if carried out, should enable the physicians in charge to solve the problem.

SUCCESS OF THE EXPERIMENT

Since this method of postgraduate instruction was undertaken by the university as an experiment, the question of import at present is that of its success. Was it of value to the physicians who attended the classes and, through them, to the communities in which they practice? Do these physicians feel repaid for their expenditure of time and money? Do they believe that a course of this nature is in any way comparable, relative to results obtained, to a course in one of the postgraduate schools? What are the relative merits of these two types of instruction, when differences in expense are considered? Do the results of the experiment indicate that, if carried further and made state-wide, this extension teaching might become a factor in improving the general health of the state? Is the university justified in assuming that the work proved of sufficient value to warrant continuation and expansion in the future?

It is not my purpose to attempt to answer these questions. It lies with the physicians who took part in the exercises, the authorities in the university who followed the work, and the profession generally in the state to determine, on the basis of results obtained, whether continuance is justifiable or advisable.

The most effective way of determining the attitude of those who subscribed to the course is by means of a questionnaire. The university has already distributed a series of questions to the physicians who were enrolled, in order that their frank opinions may be obtained. It is hoped that their answers will form the basis of a later paper.

Apart from these officially expressed opinions, the results can be estimated from the attendance records and from the instructor's impressions of the physicians' reactions toward the work. Unfortunately, on only one circuit was an attendance record kept. This showed, for the twelve weeks' work, an average attendance in the six cities of 84.2 per cent. The center with the highest average for the course showed an attendance of 93.5 per cent.; the lowest was 72.7 per cent. It must be borne in mind, when these figures are considered, that the majority of the physicians attending the classes were general practitioners, always on call for emergencies; that many of them consumed a good half day in traveling to and from the clinics, and that summer vacations cut down the attendance to some extent. Furthermore, in some of the cities where the attendance was lowest, a few men, most of them specialists in branches quite remote from internal medicine, enrolled purely for the purpose of lending impetus to the project and were present at only one or two of the earlier meetings.

Open discussion predominated at all of the gatherings, and it was interesting to note that practically every member took part. The most encouraging feature, from the standpoint of the instructor, was the frequency with which patients suffering from a given condition were brought in for confirmation of diagnosis, not on the day on which that subject was discussed, but at the exercise following. Three cases of angina pectoris, for example, were seen during the week following the lecture on that ailment; not one during the week in which it was discussed.

In my opinion, this method of instruction, representing, as it does, a field virtually unexplored, presents promising possibilities for the future. The system outlined was far from perfect, but as a starter it was encouraging. It has the distinct advantage that its cost to the individual is small and that no physician is forced to leave his practice for a protracted period. If the work is continued in the future, organization difficulties will be reduced as it becomes better established; and once it becomes a thoroughly proved success, physicians will expect it and seek it. If it does become more thoroughly established, the scope of the work should expand hand in hand with the field of operations and one should see each summer an increasing number of instructors scattered throughout the state, presenting courses in a wide variety of subjects. One cannot but wonder if, for those members of the profession who cannot readily migrate to the large teaching centers, this system does not offer the eventual solution of the problem of postgraduate medical instruction.

SUMMARY

In an effort to work out a plan whereby a large number of physicians in the state can be supplied with postgraduate instruction without leaving their own communities, the University of North Carolina, in the summer of 1916 and again in 1922, instituted as experiments extension courses in postgraduate medicine. Classes were organized on two circuits of six centers each, with an instructor from outside the state assigned to each circuit. The instructors rotated about their respective circuits, meeting each group once a week and giving each a lecture and clinical demonstration.

The chief advantage of this system is that it supplies the opportunity for obtaining instruction to the physicians who, usually because of the difficulty of providing substitutes to take charge of their patients and the expenditure of time and money involved, are unable to visit large clinics outside the state. Since the only expense, exclusive of organization, is for salary and traveling expenses of the instructors, the cost of the course per physician is relatively small.

The chief disadvantage lies in the fact that physicians of varying degrees of training and skill are enrolled and it is no simple task for the instructor to arrange the work to the satisfaction of all the members of a class.

The attendance records and the interest shown were sufficiently encouraging to warrant further experimentation along the same line. It is my belief that this system should be developed further and that, if properly expanded, it might eventually be of great value to the medical profession, particularly in regions where there is a lack of medical centers.

The Rochambeau.

New York January and February Examination

Mr. Herbert J. Hamilton, assistant professional examiner, Board of Medical Examiners of the State of New York, reports the written examinations held at Albany, Buffalo, New York and Syracuse, Jan. 29-Feb. 1, 1923. The examination covered 8 subjects and included 10 questions. An average of 75 per cent. was required to pass. Of the 115 candi-

dates examined, 81 passed, and 34, including 1 osteopath, failed. Two candidates were licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
Yale University		(1922)	1
Georgetown University		(1922)	1
George Washington University		(1909), (1916), (1922)	3
Rush Medical College		(1919)	1
State University of Iowa College of Medicine		(1921)	1
University of Louisville		(1921)	1
Bowdoin Medical School		(1921)	1
John Hopkins University		(1903), (1918), (1921), (1922)	4
Harvard University		(1921)	4
Tufts College Medical School		(1920)	1
University of Michigan Medical School		(1919, 2), (1921)	3
University of Michigan Homeo. Med. School		(1922)	1
University of Minnesota Medical School		(1921)	1
St. Louis University School of Medicine		(1922)	1
Columbia University College of Phys. and Surg.		(1920), (1921), 1922, 6)	8
Cornell University		(1915), (1921), (1922, 2)	4
Long Island College Hospital		(1922)	1
New York Homeo. Med. College and Flower Hospital		(1922)	1
Syracuse University College of Medicine		(1921), (1922, 3)	4
University and Bellevue Hospital Medical College		(1920)	1
Eclectic Medical College of Cincinnati		(1921), (1922, 3)	4
University of Oregon		(1914)	1
Hahnemann Medical Coll. and Hosp. of Philadelphia		(1921)	2
University of Pennsylvania		(1917)	1
Woman's Medical College of Pennsylvania		(1922)	1
Baylor University		(1921)	1
McGill University		(1918), (1921, 2), (1922, 3)	6
Queen's Univ. Faculty of Medicine		(1915), (1918), (1921)	3
University of Toronto		(1917), (1921, 2)	3
University of Vienna, Austria		(1913)*	1
University of Montpellier, France		(1920)*	1
National University of Athens, Greece†		(1921)*	1
Univ. of Budapest, Hungary		(1912), (1915),* (1917),* (1918)*	4
Univ. of Naples, Italy		(1912),* (1914),* (1919),* (1920, 2)*	5
University of Palermo, Italy		(1894), (1920)*	2
University of Berne, Switzerland		(1918)*	1
Syrian Protestant College of Beirut, Syria		(1922)*	1
	FAILED		
Yale University		(1902)	1
College of Physicians and Surgeons, Chicago		(1902)	1
University of Maryland		(1918)	1
Boston University		(1921)	1
Harvard University		(1898)	1
Columbia University College of Phys. and Surg.		(1922)	1
Long Island College Hospital		(1922)	1
New York Homeo. Med. Coll. and Flower Hospital		(1917)	1
Jefferson Medical College of Philadelphia		(1912)	1
Woman's Medical College of Pennsylvania		(1894)	1
University of Vermont		(1921)	1
Queen's University Faculty of Medicine		(1919), (1920)	2
McGill University		(1912), (1921)	2
National University of Athens, Greece		(1908)*	1
University of Budapest, Hungary		(1912, 2),* (1914),* (1915),* (1918)*	5
University of Florence, Italy		(1922)*	1
University of Padua, Italy		(1917)*	1
University of Palermo, Italy		(1921)*	2
University of Naples, Italy		(1907),* (1910),* (1911),* (1917),* (1919),* (1920),* (1921)*	7
University of St. Joseph, Beirut, France		(1910)	1
Osteopath		(1922)	1

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Tulane University		(1906)	Louisiana
Vanderbilt University		(1909)	Alabama

* Graduation not verified.

† License will be issued on receipt of M.D. degree from Greece.

Hawaii January Report

Dr. G. C. Milnor, secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, Jan. 8, 1923. The examination covered 10 subjects and included 65 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical School		(1922)	85
Tufts College Medical School		(1918)	90
Chiba Special Medical School		(1919)*	80
Tokyo Charity Hospital and Special Medical School		(1916)*	75

* Graduation not verified.

Colorado January Examination

Dr. David A. Strickler, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, Jan. 2, 1923. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 8 candidates who took the physicians' and surgeons' examination, 3 passed, and 5, including 2 osteopaths, failed. Eleven candidates were licensed by reciprocity and 1 candidate was granted a reregistration license. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists		(1920)	82.6
Northwestern University		(1922)	83.8
University of Pennsylvania		(1921)	83.4
	FAILED		
Kansas City University of Physicians and Surgeons		(1922)	*
St. Louis Coll. of Phys. and Surgs.		(1919) 56.6, (1922)	68.8
Osteopaths			*, 47.2

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1888)	Missouri
Barnes Medical College		(1908) Illinois, (1909)	Missouri
Washington University		(1913)	Missouri
University of Nebraska, College of Med.		(1921), (1922)	Nebraska
Jefferson Medical College		(1900)	Penna.
University of Tennessee		(1913) Tennessee, (1914)	Arkansas
Queens University		(1887)	S. Dakota
Trinity Medical College		(1902)	Michigan

* No grade given.

Book Notices

ALLGEMEINE PROGNOSTIK. ODER DIE LEHRE VON DER ÄRZTLICHEN BEURTEILUNG DES GESUNDEN UND KRANKEN MENSCHEN. Von Prof. Dr. Theodor Brugsch. Second edition. Paper. Price, 3,240 marks. Pp. 622, with 29 illustrations. Berlin: Urban & Schwarzenberg, 1922.

The author has collected statistics of measurements of a large number of normal individuals from various sources. From these data he attempts to establish a definite relationship between the viscera and body measurement. The use of mathematical formulas in this work is perhaps carried to an extreme. This attempt of correlation is, as the author states, not new with him. A chapter is devoted to normal and abnormal function of the endocrine glands. The second part of the book takes up specifically the various influences which bear on disturbances in function of circulation, respiration, metabolism and the endocrine glands. Contrary to what might be expected in a book on prognosis, there is no discussion of any single disease in which favorable or unfavorable symptoms are pointed out; instead, various conditions are grouped together and considered in a general way. The underlying objections to this exposition are the large amount of theory and too many excursions into the field of mathematics. The latter make it too complicated for the practitioner.

OBSTETRICS FOR NURSES. By Everett Dudley Plass, M.D., Obstetrician-in-Chief, Henry Ford Hospital, Detroit. Cloth. Price, $3.50. Pp. 410, with 162 illustrations. New York: D. Appleton and Company, 1922.

This is an admirably concise textbook. The author frankly states that association with his former chief, J. Whitridge Williams, has been of signal value in the preparation of his work; the text and illustrations clearly reflect this valuable impress on his mind and the product of his endeavor. And in no manner does this detract from the value of the book; in fact, this influence of his teacher enhances the worth of the volume. Obstetricians will be pleased with the clearness of presentation of the subjects discussed: from beginning to end it appeals to one as a real contribution to obstetrics, and is what the older authors were wont to call a hand book. The title of the book shows that it was intended for nurses, but its general scope suggests that it might more aptly be dedicated to medical students: perhaps it does not cover in detail all that might be adequate for student purposes, but it is far more comprehensive than serves the needs of a nurse getting her training, or even one who has dedicated herself to obstetric nursing. The nurses' duties and knowledge should be supplemental, not complemental, to those of the physician: the specific details are more in consonance with the teaching of a prospective medical man than a nurse. However, times were when a nurse was educated to do those things for the comfort and safety of the patient under the guidance of the physician. If we must change our conception of a nurse's duties, then the present book has its place: if we continue to hold the older views of her functions, then the book is

too elaborate for her needs. For a nursing textbook on obstetrics we should like to see somewhat less of the medical man's obstetrics, and more definite and extended information on the duties of the nurse, and the methods for carrying out these details. It is sufficient to state that there is no specific mention of the giving of enemas, and the technic, which if faultily applied may be fraught with dire consequences to the obstetric woman. Nor do we find a text, or illustrations, directing a nurse how to catheterize the same woman—in a textbook of this nature the author cannot presume that the nurse has learned these procedures correctly elsewhere. It would be needless to comment in detail on all the chapters. Those on the anatomy and physiology of the pregnant woman, and the description of the mechanisms of labor are valuable in their terseness and lucidity, so that they are not alone valuable but entertaining. We would be loath to see this volume abridged to conform to our conception of what a nurse's textbook on obstetrics should be: rather we trust that Dr. Plass, in bringing out subsequent editions, will amplify the scope of the book, making it a real treatise on obstetrics for students.

THE ANATOMY OF THE HUMAN EYE AND ORBIT. By William W. Goldnamer, M.D. Cloth. Price, $7.50. Pp. 224, with 65 illustrations. Chicago: The Professional Press, Inc., 1923.

There is a well-defined place in American ophthalmologic literature for a work of this character, but, unfortunately, this book does not fill the cavity completely. In fifteen chapters, the anatomy of the eye, the orbit, and the accessory ocular apparatus is simply and concisely described. The physiology of the parts under description is too often discussed in detail, and with a positiveness that does not bear scrutiny. For example, ciliary glands are described as a positive structure "whose function it is to secrete part, at least, of the aqueous humor." Again, on page 58, it is stated that "the aqueous is a secretion of the glands of the ciliary processes and the ciliary body." In view of the investigations by Hagen, Hamburger and others, such a statement cannot pass unchallenged. Similar misstatements appear at only too frequent intervals; but, as a rule, they have to deal with the physiology and not the anatomy. Multiple mistakes in spelling abound, which seem to be due primarily to careless proofreading. There is a chapter on development, treated in an extremely stepmotherly manner. The chapter on anomalies is well written, but could have been improved with simple illustrations easy to obtain. As a whole, the illustrations are good, but they would be of more value if they were placed nearer the matter to which they refer. One of the chapters is devoted to original measurements of about 200 prehistoric skulls, and is supplemented by a final chapter containing tables of measurements of the structures described. A good glossary and a fairly compresensive bibliography fill the closing pages. The book is well worth study despite mistakes in spelling, and the indifferent printing and binding. It is to be hoped that a second edition will appear in which these mistakes have been eliminated and that there will result a book of which American ophthalmologic literature may be proud.

DIE PHYSIKALISCHEN GRUNDLAGEN DES BETRIEBES VON RÖNTGENRÖHREN MIT DEM INDUKTORIUM. Von Professor Dr. P. Ludewig. Paper. Price, 7 marks, 5 pfennigs. Pp. 130, with 151 illustrations. Berlin: Urban & Schwarzenberg, 1923.

This monograph intends to present the physical principles on which induction apparatus are built and operated, while special stress is laid on their use in connection with roentgen-ray apparatus. Particular attention is paid to the theory of the electric oscillations. The author predicts that a full understanding of the peculiarities of these oscillations will eventually make it possible to produce roentgen rays that are regulated at will in their composition. Starting from the fundamentals of electromagnetism, the power field of an electric current, he explains the magnetic circle, the magnetic qualities of the metals, especially of iron, and the various electric currents produced primarily and in the inductors. Then follows a description of the various apparatus used for determining and measuring these electric manifestations.

The third chapter is devoted to electric oscillations, and to the open and closed circle of electric vibrations. A short history of the development of the interruptors is given, leading up to a complete understanding of the most modern contrivances serving this purpose. In the same way the proposition of the inductors is handled, particular attention being paid to the interpolation of inductors for the production of electric currents of high tension, which hold such an important place in modern deep roentgen-ray therapy. The collaboration of inductor and interruptor, whether the straight or the alternating currents is used, finds full consideration. In order to make plain the reciprocity between source of current and the production of roentgen rays, the author explains the principal features of roentgen tubes. The next chapter deals with the action of the roentgen tube under the influence of the electric currents, and the methods of controlling it, with an elaborate presentation of the factors influencing the production of extremely hard rays. While the whole pamphlet is primarily written for the roentgen specialist, the text is so arranged that the mere technical and physical parts of each chapter are followed by a more popular presentation of the pertinent topics, so that any reader with only ordinary information in physics is enabled to acquire a sufficient understanding of the present status of the production of roentgen rays and of the problems involved.

ORTHOPEDIC SURGERY. By Sir Robert Jones, K.B.E., C.B., Director of Orthopedic Surgery, St. Thomas's Hospital, and Robert W. Lovett, M.D., F.A.C.S., John B. and Buckminster Brown Professor of Orthopedic Surgery in Harvard University. Cloth. Price, $9. Pp. 699, with 712 illustrations. New York: William Wood & Company, 1923.

This is a very readable and valuable work by two of the best known orthopedic surgeons of two great countries. With no intent to be facetious, we might remark that the text is truly a joint affair, the opinions of one and then the other running along smoothly throughout its pages, commonly agreeing in their ideas—else they would not have undertaken the work—but differing honestly in some things in which the opinions of each are given proper expression. The text is particularly pleasing in that the reader is given credit for knowing something about the subject, thus relieving him of much detail in nonessentials and particularly in differential diagnosis, in which no attempt is made to differentiate all the possible known pathologic conditions that might in some way vaguely suggest the condition under discussion. A few of the usual related conditions are considered, and the mind is left fresh to consider them without the diverting factors of a dozen or more rare conditions which only serve to burden the brain and confuse the judgment. Under the term of orthopedic surgery they include subjects which group themselves under the six headings: (1) joints and their affections; (2) bones and their affections (including ununited and malunited fractures); (3) disturbances of the neuromuscular mechanism; (4) congenital deformities; (5) static and other acquired deformities, and (6) the principles and details of apparatus. Sane views on all subjects characterize the pages. Fads are disposed of with brief mention or authoritative silence. Illustrations are profuse and almost always instructive. Volumes of discussion on favorite controversial points are often condensed into a single poignant statement, as in the treatment of older cases of congenital dislocation of the hip, "there is no surgical triumph in the reduction of a case 16 years old if irreparable damage is done, or if life is hazarded by shock"; or, again, under "static deformities of the feet," "the flat foot, even rigid flat foot, the low arch, the everted foot, and the foot with the short tendo Achillis should not be interfered with or treated mechanically in adults unless they are a source of trouble and discomfort." While the reader's favorite formula may receive scant attention or be left out entirely, still he will find enough good things with which he does agree to more than compensate him for the little private disappointment. A word of criticism of the proof reading may not be amiss. Dozens of examples of improperly placed letters, misspelled words and other typographic errors are unfortunately present in this edition, a reflection on the bookmaker, rather than on the authors. Another edition should clear these all up.

Miscellany

A LAY EDITOR SPEAKS OF HYGEIA

From many sources *Hygeia* has received an enthusiastic welcome. Particularly encouraging is the following statement by Llewellyn Jones, literary editor of the Chicago *Post:*

HYGEIA

Chicago is the headquarters of a new magazine, *Hygeia*, published by the American Medical Association, but intended for perusal by the layman, and a most interesting magazine it is. The subtitle, "A Journal of Individual and Community Health," shows its scope, and, needless to say, the new journal has nothing in common with the usual type of health or physical culture magazine—which is too often edited from a cranky point of view or unduly commercialized.

The editors of *Hygeia* are producing a magazine which in its make-up and lavish use of illustration stands comparison with anything issued from the offices of the national popular magazines, and in addition to this, the character of the articles they print combines popularity and dependable authority. If the editors will forgive us, we will say that their magazine has one point in common with the patent medicine: it is intended for the consumption of well people—for every one who is interested in the progress of man's battle against nature. That battle, of course, is far from won. The enemy's big battalions are on the run, perhaps, but the mosquito and the germ can still give us plenty of annoyance. In *Hygeia* we find plans of campaign against these evils. We read, too, of community campaigns for better health in the schools. And, on the side of personal hygiene, we have two classes of article, the article which reassures the more or less well man who is suffering from his own ignorance, who is under the spell of the quack or of the crank notion—there is an article, for instance, on the supposed relationship between meat-eating and cancer, and a number of warnings against certain patent medicines—and, on the other hand, the article which will appeal to the man who is not well, aiding him not by advising any attempts at self-cure, but aiding him by putting his ailment in a clear light and dispelling his superstitions about it. And of course the magazine caters, too, to our sheer desire for knowledge for its own sake—as in Julian Huxley's fine article on the chromosomes.

It is evident that the basic idea under this publication is the idea that medical service of any sort, individual or community, therapeutic or prophylactic, can only achieve the best results when the patient as well as the doctor is intelligent, when they meet on something in the nature of common ground. In that, although the public does not see it and some old-fashioned doctors have not always emphasized it sufficiently, lies the difference between scientific medicine and quackery. The quack thrives on ignorance, the medical scientist is handicapped by it. And how grotesque that ignorance may be, and how widespread! Perhaps one slight index to it is the universal habit of cartoonists of representing microbes as creatures with limbs and claws. Only a convention, perhaps, like that convention which represents a lightning flash as a zig-zag, although a zig-zag course is the one of all that a flash of lightning could not take, but undoubtedly the convention is taken seriously in many quarters. And how many otherwise intelligent people think of every disease as a distinct entity, specifically curable by some other distinct entity.

Well, *Hygeia* should be able to do much to banish such notions, and in doing so it will be performing a great service to the public and to the medical profession.

THE INDIGENT MIGRATORY CONSUMPTIVE

A study was made by J. S. Whitney of the indigent, migratory consumptive in Colorado Springs, Denver, El Paso, San Antonio, Phoenix and Los Angeles (*Pub. Health Rep.* **38**:587 [March 23] 1923). In the six cities there was a total of 7,319 tuberculous persons cared for, wholly or in part, by the municipal agencies. This means, on an average, one indigent tuberculous person to every 155 of the entire population of those cities. The proportions according to cities vary greatly, those cities having the smallest population bearing the greatest burden. Phoenix, with the smallest population, has the greatest proportionate number of indigent tuberculous persons, namely, one to every fifty-eight of the population; San Antonio has one to 264. A similar study was made in Cleveland, as a control city. There, 3,443 tuberculous persons were cared for during 1921, or one tuberculous person to every 231 of the population. In the six cities studied, 63 per cent. of all the tuberculous persons for whom length of residence was known had resided in the city less than two years at the time they applied to the agency. The proportion of nonresidents varied from 83 per cent. in Phoenix to 36 per cent. in San Antonio. Los Angeles and Denver were about even with 64 and 68 per cent., respectively. El Paso was low, with 47 per cent. In Cleveland, with its facilities for caring for tuberculous persons, only 11 per cent. of all such persons reached by social agencies were nonresidents. About one sixth of all cases occurred in the age period 25 to 29 years.

In the six cities together, one tenth of the subjects were children under 14, and 10 per cent. of these were under 4 years of age. In San Antonio and Los Angeles, nearly 15 per cent. were children under 14, whereas in El Paso only about 1 per cent. were under this age. In Denver and Phoenix, 4 per cent. were children. In the Cleveland study, 20 per cent. of all cases were in children. Only 51 per cent. of all the cases recorded were in American born, about 7 per cent. being in negroes. Twenty per cent. of the patients were Mexicans. Nearly every country of the world was represented among the remaining 29 per cent., the Russian Jews (9 per cent.) constituting the only large group. The men outnumbered the women 3:1. About 3 per cent. had tuberculosis other than pulmonary. Of the pulmonary cases, nearly one fifth were of the third stage. These were evidently those cases which were so far advanced as to be obvious at the first clinical call.

What becomes of these persons? Fifty-four per cent. were lost sight of, 13 per cent. died, 10 per cent. moved out of the city, and 23 per cent. were still in the city at the end of the year studied. The financial burden borne by these various cities cannot be exactly measured. In Phoenix, the annual tax for each member of the community, man, woman and child, was $1.75 for the support and relief of the tuberculous. In San Antonio it was 22 cents. None of these cities have anything like adequate provision—medical, relief, or institutional—for caring for the tuberculous persons, whether resident or nonresident. From what can be learned from the records, it would seem that there is nowhere any attempt at a coordinated policy or program of rehabilitation of the tuberculous. The material relief facilities of these cities are incapable of adequately meeting the problem of the indigent migratory consumptive.

THE TEACHING OF EVOLUTION*

The council of the American Association for the Advancement of Science adopted at its meeting on December 26, the following resolution:

Inasmuch as the attempt has been made in several states to prohibit in tax-supported institutions the teaching of evolution as applied to man, and

Since it has been asserted that there is not a fact in the universe in support of this theory, that it is a "mere guess" which leading scientists are now abandoning, and that even the American Association for the Advancement of Science at its last meeting in Toronto, Canada, approved this revolt against evolution, and

Inasmuch as such statements have been given wide publicity through the press and are misleading public opinion on this subject, therefore,

The Council of the American Association for the Advancement of Science has thought it advisable to take formal action upon this matter, in order that there may be no ground for misunderstanding of the attitude of the association, which is one of the largest scientific bodies in the world, with a membership of more than 11,000 persons, including the American authorities in all branches of science. The following

* Bull. Am. A. Univ. Prof., March, 1923.

statements represent the position of the council with regard to the theory of evolution:

1. The council of the association affirms that, so far as the scientific evidences of the evolution of plants and animals and man are concerned, there is no ground whatever for the assertion that these evidences constitute a "mere guess." No scientific generalization is more strongly supported by thoroughly tested evidences than is that of organic evolution.

2. The council of the association affirms that the evidences in favor of the evolution of man are sufficient to convince every scientist of note in the world. These evidences are increasing in number and importance every year.

3. The council also affirms that the theory of evolution is one of the most potent of the great influences for good that have thus far entered into human experience; it has promoted the progress of knowledge, it has fostered unprejudiced inquiry, and it has served as an invaluable aid in humanity's search for truth in many fields.

4. The council of the association is convinced that any legislation attempting to limit the teaching of any scientific doctrine so well established and so widely accepted by specialists as the doctrine of evolution would be a profound mistake, which could not fail to injure and retard the advancement of knowledge and of human welfare, by denying the freedom of teaching and inquiry which is essential to all progress.

Medicolegal

Expert Testimony Viewed as the Weakest Kind

(White v. Commonwealth (Ky.), 245 S. W. R. 892)

The Court of Appeals of Kentucky, in affirming a judgment of conviction of murder, says that three expert witnesses testified that from an examination made by them some ten days after the homicide, and from an examination at or about the time of the trial, in their opinion the defendant was of unsound mind then and at the time the shooting was done. As there was no other expert testimony on this subject, it was argued that the jurors in returning a verdict to the effect that the defendant was of sound mind at the time of the homicide ignored the overwhelming evidence on the subject, and the verdict must therefore have been returned as a result of passion and prejudice.

But it has been said by this court and many other courts that expert testimony is regarded in law as the weakest kind of testimony, because it is not only a species of hearsay, but is, from necessity, based on, in a large measure, the statements of others with reference not only to the symptoms that may have appeared in the person under investigation, but is further based on the statement of facts from others which are said to have occurred in the past, and from the very necessities of the case the opinion of the expert is often based on things said to have happened in the past, which, in fact, may never have happened.

In this case, the experts, in giving their opinion as to the sanity of the defendant, must have based it on information they got from him and his family or friends with reference to his family relations and his family history, all or part of which may have been wholly inaccurate. When this court, therefore, considers the weakness of this class of testimony and considers, on the other side, the fact that the defendant appeared before the jury and testified at great length about a great many details and circumstances covering a long period of time, and admitted on the stand that he knew exactly what he was doing all the morning of the homicide, and knew perfectly what his actions were up until he pulled his pistol and fired the first shot, the court is not willing to say that the verdict of the jury in the light of these things was palpably or flagrantly against the weight of the evidence on this issue.

Nor is this court willing to say that the trial judge abused his discretion in not stopping the trial and impaneling a jury to inquire into the insanity of the defendant. The three expert witnesses did not testify until after the defendant himself had testified. At the time they testified, the court already knew from the demeanor of the defendant on the stand, and from his going into the minutiae of many occurrences covering a period of several months, whether he had the appearance of a man of unsound mind. The court knew that he had admitted that he knew exactly what he was doing all of that morning, and that he could and did account for every act of his during that day and for a long period of time prior thereto, and that he had admitted he had full possession of his faculties, and knew exactly what he was doing until after he had fired the first shot. Under these circumstances, it was not unreasonable or unfair to the defendant for the court to be of opinion that he was in fact then a man of sound mind, notwithstanding the introduction of the expert testimony.

Failure to Make Diagnosis of Empyema

(Thorkildson v. Nicholson (Minn.), 191 N. W. R. 269)

The Supreme Court of Minnesota, in affirming an order denying the plaintiff a new trial after a verdict had been directed for the defendant, says that the defendant was called, March 21, to the plaintiff's home to attend her son, who was 18 years old. On March 23 the patient was removed to a hospital. He did not improve, and, April 11, the plaintiff called another physician. Pus was then found in the pleural cavity, and on the 13th it was drained. The patient remained under the care of both physicians until April 26, when the plaintiff had him removed to another hospital where he remained, until his death, May 22, under the exclusive care of the second physician. The negligence alleged was that the defendant first treated the patient for the grip, then for typhoid fever, and then for kidney trouble, when he was not ill from any of those diseases, but from empyema, and that the defendant negligently failed to operate on and treat him for empyema. The only evidence to support these allegations of negligence was to be found, if at all, in the statement of the second physician that the defendant refused to believe that empyema was present until pus was disclosed by the use of the trocar, April 11, and the testimony of the plaintiff that some days after the funeral, when the defendant requested her to pay the remainder of the hospital bill, there was a dispute as to its having been paid, and some accusations were made; that then the defendant admitted that he did not treat the patient right and could be punished, but said that it would cost the plaintiff and him money, while she would not get the boy back, saying, "So let's be friends." The second physician expressed the opinion that empyema might have existed for about two weeks, and that proper treatment was to drain the cavity as soon as pus was suspected. A physician, who was a medical expert for the plaintiff, testified that empyema was not likely to have existed from the beginning of the illness. In answer to the question as to how long it ordinarily takes from the time empyema begins to develop until it may be detected, he said that the time varied, depending on the condition of the patient; it might take only overnight sometimes. The evidence did not give him a basis to form an opinion as to when the empyema started; but he testified that from the plaintiff's description of the patient's condition during his illness none but a "snap" diagnosis of the ailment from which he was suffering could be made.

The evidence, taken as a whole, was too uncertain and attenuated to establish that the defendant's diagnosis was negligently incorrect, or his treatment faulty from a professional standpoint. A physician is not liable for a mistake of judgment in the making of a diagnosis. There are complications in diseases to which human flesh is often subject that may for days and weeks baffle or set at variance the most skilful diagnosticians. Empyema is a secondary disease. The second attending physician testified that it frequently develops from influenza or grip or from bronchial pneumonia; "that you hardly ever find a typhoid germ causing influenza, but the symptoms may assimilate"; and that any number of infections will cause kidney trouble. Thus, even adopting the plaintiff's version of the defendant's designation of what the patient was suffering from, there was no foundation for a finding that there was negligence or want of professional skill in the diagnosis. The same held good

as to care and treatment given. But when it came to causal connection between the alleged negligence and the patient's death, there was still more patent absence of proof. From April 11, the second physician was in charge of the patient, the defendant assisting, and after April 26 for almost four weeks he was taken from the defendant's care and observation altogether. There was no opinion whatever from any medical expert that the patient could have recovered if the defendant had diagnosed or treated him differently than was done. There must be proof beyond mere conjecture that the negligence charged caused death. The evidence must warrant the conclusion that the patient would not have died from the illness the defendant was called in to treat had he not been guilty of the negligence or want of care alleged against him. People do die even under the care of the most painstaking and skilful physicians and surgeons. It is not enough that there may be an inference that some negligent act or omission was a contributing cause.

Consideration Required for Guaranty of Results

(Wilson v. Blair (Mont.), 211 Pac. R. 289)

The Supreme Court of Montana, in reversing a judgment for $5,000 damages that was rendered in favor of the plaintiff and in directing that instead thereof one should be entered for the defendant physician, says that the plaintiff, a watchmaker and engraver, sustained an injury to one of his thumbs whereby the tendons were severed and the first joint became stiff. About six weeks after the accident, the plaintiff had a conversation with the defendant, who, the plaintiff alleged, said that a surgical operation on the thumb would cost between $25 and $50, and said that he would guarantee that after the operation the hand would be 100 per cent. efficient. An operation was performed, but it did not restore efficiency. The plaintiff then brought this action, relying on the special contract which he alleged that he had entered into with the defendant for the operation with the guaranty of results. To prevail, the plaintiff must prove that there was an agreement enforceable at law, that the defendant violated such agreement, and that damage resulted. The defendant denied that there was any agreement guaranteeing the results of the operation.

If the contract in question was merely that the defendant was to perform a surgical operation, then the law required that he possess the skill and learning possessed by the average member of the medical profession in good standing in the community in which he resided; and to apply that skill and learning with ordinary and reasonable care. He did not become a guarantor of the results of such operation. But that plaintiff contended that the defendant entered into a special contract under the terms of which he increased his responsibility by guaranteeing the results of the operation to be performed. In order that such special contract be valid, or to make it enforceable at law, it must be supported by a consideration. The only consideration for this whole transaction, passing from the plaintiff to the defendant, was the fee of from $25 to $50, and the plaintiff said that this fee was for the operation. He said that he agreed to pay this to the defendant, and that afterward the defendant warranted or guaranteed the results of the operation. It could not be maintained that the guaranty was made as an inducement to the contract to operate, for the guaranty was made subsequent to the agreement to pay for the operation. It was apparent that the warranty was made after the agreement to operate and to pay therefor, that the warranty did not become a part of the contract to operate, and that there was no consideration for the warranty. Wherefore the supreme court is of the opinion that the trial court erred in denying the defendant's motion for a nonsuit, that the verdict was against the law, and that the defendant's motion for a new trial ought to have been granted.

During the trial, counsel for the plaintiff asked certain questions and made certain statements the obvious purpose of which was to get before the jury such matter as that the jury might infer therefore that some bonding company, and not the defendant, would be called on to bear the burden of meeting any judgment rendered in this cause. Such practice is not to be commended. Such matter was without the issues, and none of it was admissible. But, having determined that this cause must be reversed on other grounds, the supreme court does not deem it necessary to determine now whether or not the action of counsel constituted, in itself, reversible error.

May Erect Residence for Physician at Hospital

(Forward et al. v. San Diego County et al. (Calif.), 211 Pac. R. 458)

The Supreme Court of California says that the defendant supervisors were about to let a contract for the erection of a residence and garage at the county hospital for the county physician in charge of that hospital, when the plaintiffs, who were taxpayers, sought to enjoin the execution of the contract. A demurrer to the complaint was interposed, and sustained. Section 4041 of the Political Code of California fixes the powers and duties of boards of supervisors, and Subdivision 7 authorizes them, among other things, to construct hospitals and almshouses "and such other public buildings as may be necessary to carry out the work of the county government." There can be no doubt that, under the power to construct and maintain a county hospital, such buildings as may be reasonably necessary for that purpose may be constructed by the board of supervisors, and if, in their judgment, the proper management and control of the county hospital requires that a residence and outbuildings be constructed for the county physician, the supervisors would have the power so to do under the statute in question. Wherefore the judgment sustaining the demurrer is affirmed.

Allowance of Expert Witness Fees for Physician

(State v. Wiebke (Minn.), 191 N. W. R. 249)

The Supreme Court of Minnesota holds, in this bastardy proceeding, that it was within the trial court's discretion to allow expert fees for a physician who in part of his testimony was called on to give his opinion as a medical expert. The supreme court says that complaint was made because of the allowance of expert witness fees for the physician who attended the prosecuting witness when the child in question was born. The physician did not merely testify to what he observed, but was also called on to give his opinion as an expert. The allowance of fees to an expert witness is largely within the discretion of the trial court, and the supreme court finds no abuse of that discretion here.

Damages for Conscious Pain Deadened by Opiates

(Wasicek v. M. Carpenter Baking Company (Wis.), 191 N. W. R. 503)

The Supreme Court of Wisconsin says that this action was brought by the plaintiff as administratrix to recover damages for the death of her husband, a city fireman, who was killed through a collision of the defendant company's automobile with a fire truck on which he was riding. A judgment for damages was entered which allowed $10,000 for compensation of the widow; for the estate, exclusive of pain and suffering, $600, and for pain and suffering, $2,625. The supreme court approves the first two items, and reduces the third one to $500. There is no yardstick, the court explains, by which either the jury or the court can accurately measure the damages in a case of this kind. The amount awarded for pain and suffering was much more difficult of approximation than that allowed for compensation of the widow. It must be manifest that $2,625 for three hours of conscious pain and suffering, deadened by opiates, could not stand, for, if so, there would be cases in which such damages would mount into hundreds of thousands of dollars, maybe millions. There is no accurate scale by which either court or jury can determine damages for pain and suffering. They must, however, exercise their judgment and discretion. But this court, having before it many cases in which juries have passed on damages for pain and suffering, is able, by considering these and the circumstances of each, to get a fairly balanced average, and concludes that $500 is the utmost that can be allowed in this case for pain and suffering. The verdict of the jury was not perverse. The jury simply had no tangible evidence on which to base it.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, San Francisco, June 25-29. Dr. Olin West, 535 N. Dearborn St., Chicago, Secretary.

American Association of Anesthetists, San Francisco, June 25-27. Dr. F. H. McMechan, Avon Lake, Ohio, Secretary.
American Ophthalmological Society, Colorado Springs, June 19-21. Dr. T. B. Holloway, 1819 Chestnut Street, Philadelphia, Secretary.
American Proctologic Society, Los Angeles, June 22-23. Dr. Ralph W. Jackson, 245 Cherry Street, Fall River, Mass., Secretary.
American Psychiatric Association, Detroit, June 19-22. Dr. C. Floyd Haviland, Drawer 16, Capitol Station, Albany, New York, Secretary.
American Radium Society, San Francisco, June 25-26. Dr. Edwin C. Ernst, Humboldt Bldg., St. Louis, Secretary.
American Society of Clinical Pathologists, San Francisco, June 25-26. Dr. Ward Burdick, 652 Metropolitan Bldg., Denver, Secretary.
American Society of Tropical Medicine, San Francisco, June 25-26. Dr. B. H. Ranson, Bureau of Animal Industry, Washington, D. C., Sec'y.
American Therapeutic Society, San Francisco, June 22-23. Dr. Lewis H. Taylor, The Cecil, Washington, D. C., Secretary.
Arizona Medical Association, Grand Canyon, June 21-22. Dr. D. F. Harbridge, Goodrich Bldg., Phoenix, Secretary.
Association for the Study of Internal Secretions, San Francisco, June 25. Dr. F. M. Pottenger, Title Insurance Bldg., Los Angeles, Secretary.
Association of American Teachers of Diseases of Children, San Francisco, June 26.
California, Medical Society of the State of, San Francisco, June 21-23. Dr. W. E. Musgrave, Balboa Bldg., San Francisco, Secretary.
Massachusetts Medical Society, Pittsfield, June 12-13. Dr. W. L. Burrage, 182 Walnut Street, Brookline 46, Boston, Secretary.
Medical Women's National Association, San Francisco, June 25-28. Dr. M. J. Potter, First National Bank Bldg., San Diego, Calif., Secretary.
Montana, Medical Association of, Butte, July 11-12. Dr. E. G. Balsam, 222 Hart-Albin Bldg., Billings, Secretary.
National Tuberculosis Association, Santa Barbara, Calif., June 20-23. Dr. George M. Kober, 370 Seventh Avenue, New York, Secretary.
New Jersey, Medical Society of, Atlantic City, June 21-23. Dr. William J. Chandler, South Orange, Secretary.
New Mexico Medical Society, Albuquerque, June 19-21. Dr. J. W. Elder, Santa Fe Hospital, Albuquerque, Secretary.
Oregon State Medical Association, Portland, July 10-11. Dr. C. L. Booth, Selling Bldg., Portland, Acting Secretary.
Pacific Northwest Medical Association, Seattle, June 19-21. Dr. F. Epplen, 422 Paulsen Building, Spokane, Secretary.
Radiological Society of North America, San Francisco, June 21-22. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Southern Minnesota Medical Association, Faribault, June 11. Dr. H. T. McGuigan, Redwing, Secretary.
Utah State Medical Association, Salt Lake City, June 20-22. Dr. W. L. Rich, Boston Building, Salt Lake City, Secretary.
West Virginia State Medical Association, Beckley, June 12-14. Dr. Robert A. Ashworth, Moundsville, Secretary.
Western Society for the Study of Hay Fever, Asthma and Allergic Diseases, San Francisco, June 25. Dr. A. H. Rowe, Hutchinson Bldg., Oakland, Calif., Secretary.
Wyoming State Medical Society, Laramie, June 20-21. Dr. Earl Whedon, Sheridan, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Eighth Meeting, held at Atlantic City, N. J., May 1-2, 1923

The President, DR. J. B. HERRICK, Chicago, in the Chair

Chronic Valvular Disease

DR. WARREN COLEMAN, New York: When a child or adolescent is out of sorts, anemic, tires easily, or has a low grade fever, the possibility of endocarditis should be considered, as recurrent attacks play a part in producing chronic valvular disease. Treatment includes reduction of the work of the heart to a minimum, protection of the patient from exposure, and rest in bed. As healing valves are susceptible to reinfection, plenty of time should be allowed for recovery, sometimes as long as two years. If these precautions are followed, a practically normal heart can be obtained.

DISCUSSION

DR. HARLOW BROOKS, New York: To emphasize the importance of rest in known endocarditis, in the hope that favorable results may follow, rest acts in two ways: it gives the valve a chance to repair, and it conserves the diseased muscle which is unfavorably involved.

DR. HENRY KOPLIK, New York: We should be very cautious in pronouncing a child free from cardiac disease until repeated examinations have been made over long periods of time. The first president of this association, Dr. Delafield, emphasized the point that very rigid confinement by rest in bed, especially in children, should be avoided. It may favor another condition which is as bad—the accumulation of adipose tissue. The murmur disappears, but will reappear when the patient is allowed to get up. If the period of confinement to bed is limited, it will avoid degeneration of tissues.

DR. W. S. THAYER, Baltimore: The problem is not the same in children as it is in adults. For adults, rest in bed is vital after endocarditis. The increasing amount of fat may be avoided by physical methods. The danger of allowing fat to accumulate is illustrated by the case of a young woman who was put to bed during an attack of endocarditis. She was kept in bed for three months. She gained so much weight that she developed atrophic striae all over the body. That was a catastrophe for a young and pretty woman.

Myocardial Lesions

DR. C. F. MARTIN, Montreal: Cabot has said that four out of five cases diagnosed as chronic myocarditis are incorrectly classified. We investigated sixty-five cases in which a diagnosis of myocarditis was made. Of these, twelve showed marked diffuse fibroid lesions; sixteen showed focal lesions; eleven presented fatty degeneration; fourteen showed nothing according to the pathologic reports, except that the cross striae of the muscle cells stained faintly. Two cases showed hypertrophy, but no myocardial lesion, yet the patients had died from myocardial insufficiency. Many cases showed no decompensation until shortly before death. In connection with anginal attacks: In some cases there was most severe pain with no lesion of the aorta or coronary arteries. In several cases the main lesion was near the orifice. Patients often show no disturbance on effort, although having lesions which ended fatally. A man, aged 38, with no history at all of trouble with breathing, and leading a very active life, died suddenly in his first attack. Necropsy showed very marked aneurysmal dilatation at the apex of the heart, and serpiginous dilatation of the myocardium. The functional capacity of the heart, therefore, does not depend on the lesions; it is rather an affair of dynamics than of anatomy. The efficacy of the myocardial muscle depends on the systolic discharge and on vasomotor nerve influence. Something more than anatomic change has to occur to impair the heart. The equilibrium of repletion and depletion of the cavities plays a rôle, and the muscle is adaptable in later decades to the circulatory changes by means of intraventricular anastomoses. The right preponderance shifts to the left side, and any deficiency in anastomosing mechanism might account for lack of adaptability of the heart muscle. Failure of the heart to respond to effort is caused by strain on the heart, and there is no standard to determine myocardial efficiency. Exercise tests and the electrocardiograph are not exact standards. It cannot be stated that because the electrocardiogram is abnormal the myocardium is defective, or vice versa.

Diphtheria Myocarditis

DR. A. S. WARTHIN, Ann Arbor, Mich.: I have found marked histologic changes in the heart. The patients died in from three days to three months after the onset of the disease. The heart muscle is pale, without striation, and will not take the eosin stain. There is no cloudy swelling. After the fifth day the heart muscle shows vacuolization and Zenker's necrosis of the striped muscle. The spread of degeneration follows the vascular distribution. Later, there is edema of the muscle with preponderance of hyaline cells. In from ten days to two weeks after the onset of the disease, there is mononuclear infiltration and the muscle fibers begin to liquefy. Next occurs fibroblastic proliferation throughout the heart and the bundle of His, with some evidence of regeneration changes. There seems to be much repair with myoplastic and myoblastic cells. There may be fibrosis, we do not know; but this may give rise to fibroid heart during life. The fact of muscle regeneration is of great importance, and may bear on functional improvement.

DISCUSSION

DR. K. F. WENCKEBACH, Vienna, Austria: In the study of muscle degeneration, Wieser considered that the regeneration of fibers was an important part. He found that there was

an enormous amount of muscle regeneration in tissues in which infection had been present long before. In this question of regeneration of striped muscle, it is extremely interesting to hear that the first stage of regeneration is comparable to that of smooth muscle. Large masses of smooth muscle may be regenerated in the vessel wall, but there is a difference in the structure of the regenerated portions and the original muscle structure. The whole mass of the regenerated portion appears like a foreign body when surrounded by the rest of the smooth muscle tissue, so that there is not the same arrangement of the cells as formerly, the original muscle being arranged in longitudinal layers; but the new muscle formation is active and serves very well to repair the damage done during the period of activity of the infectious disease.

DR. C. T. BUNTING, Madison, Wis.: Was there any evidence of regeneration in children?

DR. HENRY A. CHRISTIAN, Boston: In regard to the flat granules seen in two of the slides, I should like to ask what explanation Dr. Warthin has.

DR. A. S. WARTHIN, Ann Arbor, Mich.: All my cases were in young adults, from 18 to 20 years of age. In regard to the flat granules, they were due to mercuric chlorid pigment which was not entirely washed out.

Structural and Functional Involvement of the Heart, Following Acute Respiratory and Other Acute Infections

DRS. WALTER W. HAMBURGER and WALTER S. PRIEST, JR., Chicago: Three years ago a study of postinfluenzal heart lesions was begun, and these cases have been followed up to see what changes have occurred in the three year interval. The following are recorded: 1. A case of auricular extrasystoles, with bigeminal pulse on slight exercise. Present condition: regular pulse even on exercise. 2. Permanent displacement of the pacemaker. After three years: ectopic beats in Lead 1. The man feels well. 3. Originally, a case of streptococcus sore throat, then heart block, premature contractions. The man made a good recovery and is now well. 4. Influenzal myocarditis. Patient not well yet; needs frequent rest. 5. Acute streptococcus tonsillitis; gastric collapse; complete auriculoventricular dissociation and right bundle branch block. Atropin, 1/100 grain, relieved all pressure in the epigastrium; return of normal rhythm; complete recovery. Analysis shows that these patients recover after a sufficient time has elapsed. The cases may be recorded in two groups: (1) structural involvement; (2) functional involvement. In the first group there is evidence of heart failure; in the second group, there is absence of positive evidence of organic involvement, but the pain, weakness and depression are characteristic of irritable heart. The structural involvement may be only transitory in character. Basal metabolism estimations disclosed that there were slight thyroid disturbances, and many times there was concomitant disease, both structural and functional.

DISCUSSION

DR. E. B. KRUMBHAAR, Philadelphia: Were any preinfluenzal studies made in order to rule out infectious coincidence?

DR. K. F. WENCKEBACH, Vienna: In such cases the diagnosis of myocarditis has not been made. Some of the influenzal cases are cases of functional disorder of the heart, delayed conductivity, heart block. This functional disorder may be set up by toxic agents, or, perhaps, by fatigue. I have seen delayed conductivity in cases of influenza. MacKenzie has stated that there may be a complete dissociation between auricles and ventricles, but not with complete recovery. Such cases may be cases of myocarditis, but proof has to be given, and this cannot be obtained until the cases are terminated. We know that we can set up a heart block with digitalis or a prolongation of the auriculoventricular interval, but no one would say that digitalis will set up myocarditis.

DR. W. W. HAMBURGER, Chicago: We had no previous experience with these patients, but there was no history of cardiac disturbance before influenza developed. I do not want to say that auriculoventricular block is evidence of structural disease. The only case which showed other symptoms was one in which there was a large, tender liver, scanty urine, dyspnea and temporary signs of heart failure. This case cleared up, but we can conceive of a true, acute, structural involvement. I believe that it may be cloudy swelling or edema, which is a tissue change of an acute nature but susceptible of being restored to normal.

Atypical Form of Verrucous Endocarditis

DRS. EMANUEL LIBMAN and BENJAMIN SACKS, New York: Various forms of verrucous endocarditis have been described, but there is another type, hitherto undescribed, that is due to some unrecognized virus. We have studied four cases in which postmortem examinations were made. The course was subacute, running from four to nine months. The ages of the patients varied from 7 to 24 years. Three were females and one was a male. There was a large, plateau-like lesion extending from the mitral valve forward over the wall of the left ventricle, covering the anterior flap of the mitral valve. In two cases the right auricle was involved. In four cases the tricuspid valve was involved, and in two cases the pulmonary valve was involved. These lesions were never found in cases of rheumatic fever (i. e., fatal cases in which the Aschoff bodies were demonstrated). There are no bacteria in the vegetations. The blood cultures are negative. There is a tendency to involvement of the wall of the left ventricle. There may be previous valvular disease, and the lesions may be recurrent. In one case there was one small infarction of the spleen. There were no glomerular lesions of the kidney. In three cases there had been a recent pericarditis. The course was subacute, with irregular fever and anemia, but no leukocytosis. There was some pulmonary and joint involvement, with a very peculiar discoloration over the joints. In half of the cases there was lupus erythematosus. Convulsions occurred in three cases, pericarditis, in three cases, petechiae in four cases, and multiple skin necrosis.

DISCUSSION

DR. GEORGE BLUMER, New Haven, Conn.: Reports of a very large number of cases of lupus erythematosus have been published in which the disease has not run a typical course and has gone on to death by sepsis as in the cases mentioned by Dr. Libman.

DR. L. F. BARKER, Baltimore: I am very much interested in these cases of acute lupus erythematosus. In Baltimore we had one case, and the Mayos have published several cases. In some cases, lesions of tuberculosis were found at necropsy, and it was thought that the whole condition was due to tuberculosis; but, really, only about half the cases show tuberculous lesions. I should like to ask Dr. Libman whether he thinks that tuberculosis can be regarded as a predisposing factor in these cases.

DR. EMANUEL LIBMAN, New York: I do not think that there is a well delineated clinical picture of lupus erythematosus yet. I have seen a number of typical cases and also a great many which at the postmortem do not show this lesion. In atypical cases, a terminal endocarditis is found. As far as my own experience in fatal cases of lupus erythematosus goes, we did not find a tuberculous etiology. Tuberculosis can be said to be one of the etiologic factors of lupus erythematosus dermatosus, but I do not think that it plays a rôle in the cases we reported. One patient is alive and well. There were two attacks of fever, and a lung focus. There was pericarditis, but a negative blood culture. I believe that recurrence may take place, and there is some pathologic evidence in support of this view.

Use of the Roentgen Ray in the Diagnosis of Chronic Valvular Heart Disease

DR. J. A. E. EYSTER, Madison, Wis.: The factors that should should be taken into account in adopting roentgen-ray determinations of clinical cases include: (1) possible variations in the size of the heart from time to time; (2) influence of moderate exercise, and (3) influence of meals shortly before examination. Our study showed (1) a considerable variation in the frontal and in transverse diameters; (2) a variation of 5.1 per cent. after walking for fifteen minutes, and (3)

a variation of 5.1 per cent. after meals. This shows that variations of from 25 to 50 per cent. may occur from slight causes.

DISCUSSION

DR. K. F. WENCKEBACH, Vienna: The form of the orthodiagram depends on the level of the diaphragm. I compare the mass of the heart with that of a sack of peas with small horizontal diameters. If there is no base for the sack to rest on, it takes a pendant shape, but if it is supported, its base follows the shape of the base on which it is resting. It will become wider and flatter at the base with large, horizontal diameter. That occurs also with the heart. I am skeptical of the value of gaging the bulk of the heart by means of figures. I am trying to get as much as possible out of the orthodiagram, but also as much as possible out of percussion. Not everybody knows how to do percussion. Percussion may be of value in trying to gage the position of the under side of the heart, because although we may be able to trace the rest of the outline, a most important part of the figure is always lacking. I tried injecting oxygen into the abdomen to make visible this lower surface of the heart, but the attempt was not successful, although the method was a perfectly safe one as regards the patient. This led me to go back to the older method of percussion. This is difficult, especially for the apex and the left side of the heart, but by careful percussion one can follow the louder and softer sounds and make out the right side of the heart. One can get a very clear line over the liver and stomach in the normal heart. In the long heart there is a different type of line; in the high heart there is another type of line with a much more horizontal line for the base. This gives one an idea how high the heart is lying in the chest. When there is great enlargement of the left ventricle in mitral or aortic incompetence, there is an enormous increase in size of the left ventricle which cannot be detected in any other way.

DR. JOSEPH H. PRATT, Boston: I have been using the orthodiagrammatic method since 1905, and I feel convinced that there is something wrong in the conclusions drawn from the data presented. It is my experience, and that of others who have worked extensively wtth orthodiagrams, that it is of great value in the routine measures for diagnosis of heart disease. Perhaps, in some of these cases the change in the size of the heart was very little outside the normal. The size of the normal heart varies greatly, and the standards are not satisfactory. When we examine the heart with the orthodiascope it is in constant motion and influenced by respiration and by systole and diastole. There may be a slight amount of error, and it is impossible to determine very slight enlargements; but we are interested in determining definitive enlargement which is of clinical significance, and in that the orthodiascope has given definite help. The teleroentgenogram is a substitute for the orthodiagram. Fluoroscopic methods can also be used. During the last two years, as a result of the perfecting of the machine and of the technic, it has been possible to use the orthodiagram to check up the detail of the teleroentgenogram. The teleroentgenogram does not give the long axis of the heart nor does it show whether the apex is below the dome of the diaphragm. The position of the apex must be guessed at; but by using the two methods, definite enlargement of the heart, if present, will be revealed. Percussion is not an entirely exact method, and details overlooked by percussion can be checked up by the orthodiascopic methods.

DR. W. S. THAYER, Baltimore: Only constant practice for many years in percussion of hearts can teach the value of this procedure. I am surprised to hear Dr. Pratt state that he values the orthodiagrammatic methods so much. Comparing my estimate of the size of the heart by percussion, with the measurements by orthodiagram, I have never undervalued the size of the heart. There are many diagrams that do not mean much, but the physician who cannot percuss "is not there!" One of the satisfactions of getting a few years older is learning to use the fingers better.

DR. K. F. WENCKEBACH, Vienna: Percussion certainly is the most difficult art in physical diagnosis. It took many years of practice before I could be sure of being half way exact. I object to looking at the roentgenogram before percussing, because when I know its form I make a most beautiful percussion. Furthermore, it may prevent one from finding out what is the real bulk of the heart by the percussion method. The roentgenogram has undue influence on the percussion test. The percussion should be done first.

Physical Findings in Pericarditis with Effusion

DRS. ROGER S. MORRIS AND CARL F. LITTLE, Cincinnati: Large pericardial effusions, not suspected during life, have been found at necropsy. To study this question, injections were made in patients recently dead, and it was found that the cardiohepatic angle was not obtuse; it was an acute or a right angle. Also there were no roentgen-ray changes before 250 or 300 c.c. was injected into the pericardial cavity. The first change on percussion was increased dulness at the base of the heart, near the great vessels. Observations continued on patients for two and one-half years confirmed these findings on the cadaver. Percussion was done with the eyes closed, and before fluoroscopic and teleroentgenographic examination were made. Tests were made both in the recumbent and in the erect posture. In all cases we found an acute cardiohepatic angle and dulness at the base of the heart. We feel that this is useful in recognizing pericardial effusions. The roentgen ray confirmed the percussion findings in these cases.

DISCUSSION

DR. L. A. CONNOR, New York: The recognition of small amounts of liquid in the pericardium is a difficult matter. Often, even large effusions are overlooked. I want to emphasize the importance of posterior signs because they are most constant. My experience is that the cardiohepatic angle varies greatly in different cases. The roentgen ray and percussion usually show what Dr. Morris said, but there are exceptions to that rule. Another important point is that often there is preservation of the friction rub even when the effusion is very large. That is the reason frequently of failure to recognize effusion; we think that wherever there is a rub there is very little fluid.

DR. W. S. THAYER, Baltimore: One point which Dr. Morris brings out is of importance, and that is the change of dulness at the base with change of position. We have all assumed change in the shape of dulness with change of position from side to side, but the change in the amount of dulness at the base with the erect and recumbent postures is of importance.

DR. WARREN COLEMAN, New York: I think that the angle between the great vessels and the heart is one of the most important things to determine from the standpoint of percussion. If one percusses carefully over the normal heart, it can be obtained. In my experience, one of the sure signs of the presence of fluid is the straightening out of that line.

DR. F. T. LORD, Boston: Contrary to Dr. Coleman's experience, I have determined that angle with great difficulty. I think the elevation of the area of dulness of the heart above the normal position leads me to suspect effusion. Another point which Dr. Connor made is of importance; that is, compression in the back area due to atelectasis, owing to effusion. Also, in large hearts in children this sign may be present without any effusion.

Heart in Exophthalmic Goiter and in Adenomatous Goiter with Hyperthyroidism

DRS. LOUIS B. WILSON, W. M. BOOTHBY AND F. A. WILLIAMS, Rochester, Minn.: In exophthalmic goiter the heart work is so increased that the patient, lying in bed, needs four and five thousand calories a day. There is increased systolic blood pressure and slightly decreased diastolic pressure. In adenomatous goiter with hyperthyroidism, there is increase in both systolic and diastolic pressure. Cardiac murmurs occur in half the cases. Murmurs are of two kinds, the systolic blowing murmur, associated with changes in blood flow, and a systolic blowing murmur, with maximum at the apex, due to mitral regurgitation and enlarged left ventricle. Few patients die of heart failure in this disease. One death in twenty-three cases was recorded as due to cardiac failure. Difficult breathing after operation is due to anoxemia resulting from injury to the laryngeal nerve. In some patients, auricular

fibrillation develops from the stress of operation. Patients with emergency operations for other conditions have developed auricular fibrillation, owing to unsuspected thyroid conditions. In our cases, sinus auricular block occurred in one case; T-wave negativity in three cases; hypertrophy in seventeen cases, and fibrosis in two cases. Eleven of the patients were over forty-five, and in these, lipoid changes were more marked than in other women of the same age group. Our conclusions were that pronounced changes are not so frequent in goiter as is generally supposed. When they do occur, they dominate the picture; but they can be relieved greatly by proper cardiac therapy.

Insulin in the Treatment of Severe Diabetes

DRS. ALEXANDER MCPHEDRAN AND F. G. BANTING, Toronto: When we admit cases of diabetes to the Toronto General Hospital, the patients are allowed to remain for twenty-four hours on the diet they have been taking previous to admission. They are then placed on a diet requisite to satisfy their basal requirements. The next step is the taking of a careful history: complete and careful examinations are made as to the existence of foci of infection; examinations of the blood and urine are made, and the excretion of sugar is noted. The amount of sugar excreted is subtracted from the amount given to fulfil the basal requirement, and furnishes the basis for estimating the amount utilized. If the patient becomes sugar free when receiving a diet calculated according to his basal requirement, he is not at present considered a sufficiently severe case for insulin treatment. The insulin treatment consists in giving an amount sufficient to maintain a balance between the calories that cannot be metabolized by the patient's own pancreatic secretion, over and above the carbohydrates, fats and proteins that he is able to utilize. In the milder cases, insulin is administered once a day; in the more advanced cases it is given twice a day, and in the very severe cases it may be necessary three or four times a day.

The best time for the administration of insulin is from twenty to thirty minutes before meals. The insulin injected subcutaneously is absorbed by the circulation, and this tends to produce a balance between the hypoglycemia of insulin and the hyperglycemia brought about by the food intake. The patient with a very high blood sugar may stand a comparatively higher dose, because the blood sugar must be brought down to normal. Roughly speaking, one unit of insulin has the effect of utilizing 2.5 gm. of carbohydrate in the milder types of cases. In the more severe cases of diabetes one unit of insulin will take care of about 1 gm. of carbohydrate. Care must be given in studying the best time for the administration of the dose. It is sometimes necessary to give a larger dose in the morning than in the evening, because after the morning injection there is a tendency to hypoglycemia, and breakfast counteracts the downward tendency. The action of the drug lasts till noon, when another meal is taken. Some patients do better when taking 15 units in the morning and 10 units in the evening.

In the management of the case it is better to decrease the diet and increase the dosage, until the amount of food required by the patient is reached. The diet is then kept constant, and sufficient insulin is administered to keep the patient sugar free if possible. The art of treatment consists in balancing the amount of internal secretion with the amount of carbohydrate that is over and above the patient's tolerance, keeping the equilibrium between the hypoglycemia, on the one hand, and hyperglycemia, on the other. If the patient is excreting 1 or 2 gm. of glucose with a diet that is 700 calories above the requirement, one must find out the time of day at which that amount is being excreted, and administer the dosage accordingly. Insulin shock is a definite clinical entity. It is always recognizable, as the subjective sensations are pathognomonic of the lowering of blood sugar. The reactions depend on the fall of the blood sugar and the extent and rapidity of the fall. The normality of the blood sugar must be kept above the level at which the reactions occur. It has been found experimentally that the administration of calcium relieves the hypoglycemia convulsions that occur in rabbits, although without raising the blood sugar. This fact has been made use of clinically at the Children's Hospital. The patients are less likely to hypoglycemic reactions when receiving 3 gm. of calcium lactate, three times a day.

One type of diabetes that does not respond well to insulin treatment is that with diarrhea, but one patient with a severe case accompanied by diarrhea is now having fewer reactions under calcium chlorid administration, than previously. Insulin dosage means that the patient is permitted to metabolize more calories. The increase of caloric intake and maintenance of normal blood sugar relieve the symptoms of the disease.

In regard to the continuous use of insulin indefinitely, it does seem that by adding the necessary amount of pancreatic secretion, the patient's own gland is relieved of the strain and has some chance to recover. Patients showing 50 gm. excretion, can after three months' treatment take 300 additional calories and remain sugar free. The other patients who were acetone free despite starvation will get an increased tolerance after a time. The formation of acetone is prevented in patients who showed acetone from starvation, because they are now able to handle sufficient calories.

Insulin is not a cure for diabetes, it is a treatment. It allows the patient to combat infections, to keep free of acidosis and to avoid coma. It enables the diabetic patient to burn sufficient carbohydrate, so that protein and fats can be added to the diet in sufficient quantities to give him energy to carry on his work and maintain the ordinary economic burden of life.

Insulin in the Routine Treatment of Diabetes

DR. E. P. JOSLIN, Boston: In the treatment of diabetes, we must conserve all the measures that have proved useful without the use of insulin. Insulin is a powerful drug and calls for careful usage. Recovery from insulin shock is prompt when remedial measures are instituted. The juice of an orange, or two teaspoonfuls of sugar, immediately relieve the patient. Insulin dosage needs supervision and limitation, but its use can be taught the general practitioner. I have sent the drug to 127 different general practitioners, who had patients to be treated. The physician should spend two or three hours in learning how to manage the diet and how to use insulin.

The diet should be what the patient has been taking, with some modification, in the direction of reduction of calories. The protein should be 1 gm. per kilogram of body weight. The carbohydrate should be rather less than what has been taken. The first doses should be 1 unit. Proper balancing of the ration will help to cut down the amount of insulin needed. Insulin is best given in the morning, and the dosage depends on the rate of absorption from the intestinal tract and from the skin. It is better to play safe and to give too small rather than too large a dose. In the first 5,000 doses given there were only thirty-five reactions. Insulin seems to enable the pancreas to respond better, so that in very severe cases in which at first as much as 35 units is needed, the blood sugar can be kept normal with 10 units. Gain in weight is vey marked. If patients have to omit insulin for lack of supply, they must go to bed and reduce the diet one third. Neglect to do this will produce coma. Now that we understand treatment by insulin, it must be said that deaths from diabetic coma are an unnecessary accident that can be avoided by sensible treatment. If the patients die from coma at the present time, it is a disgrace to the medical profession.

Insulin in the Surgical Complications of Diabetes

DR. R. T. WOODYATT, Chicago: The most common surgical complications in diabetes are infections of the extremities. Usually these are emergency cases, and there is no time for metabolic investigations. There is usually a low alkali reserve and acid intoxication, but the surgical condition will not permit of delay. To operate on the patient courts shock and risks increasing the acidosis, but allowing infection to progress means greater injury. If we can bring the alkali reserve to a safe level, the damage stops. This should be brought up to 40 on the Van Slyke scale. Three measures are useful in bringing about this result: (1) dietary control; (2) administration of alkalis, and (3) insulin dosage. In uncomplicated cases, 1 gm. of fat, 0.5 gm. of protein and practically no carbohydrate is a safe ration and will stop acidosis and restore alkali reserve. The fat can be given

as 1 pint (500 c.c.) of cream: two eggs for protein, and 25 gm. of bread. In the complicated cases, however, tissue breakdown continues without reference to diet. Restoration of the alkali reserve by means of insulin may take from ten to twenty-four hours. If, however, acid continues its damage to the organs, the loss of one hour may mean death. Another point is that one does not know how much carbohydrate there is for the insulin to work on. Under these circumstances the administration of 20 gm. of sodium bicarbonate, by mouth, with sufficient water, every hour, till the alkali reserve returns to normal, is a safe measure. After this the administration of 5 gm. an hour is enough to hold the cases until further examinations have been made, or until sufficient time has been given to estimate the insulin dosage.

(To be continued)

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION

Annual Meeting, held in Atlantic City, N. J., April 30, 1923

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The Respiratory Center in Acidosis

DRS. J. H. AUSTIN, G. E. CULLEN and LEON JONAS, Philadelphia: In our studies on the acidosis occurring in ether anesthesia, we obtained evidence of extremely rapid fluctuations in the alkali reserve as well as in other factors concerned in the acid base equilibrium. The larger part of the fall in alkali reserve that occurs with ether, chloroform and nitrous oxid anesthesia occurs during the first few minutes of the anesthesia. The fall in alkali reserve with nitrous oxid anesthesia is less than with ether and chloroform anesthesia. A fall of the same degree and rate of development can be produced by using nitrogen instead of nitrous oxid in the same concentration. Exertion, psychic disturbance and repeated bleedings, as occurring in these experiments, do not of themselves produce a fall in alkali reserve. Anoxemia alone, without exertion, lowers the alkali reserve, but less than does the administration of the anesthetics. The importance of the combination of anoxemia and exertion is suggested by these experiments. They are probably not the only factors responsible for the fall in alkali reserve in these experiments. The immediate fall in p_H associated with the fall in alkali reserve indicates that we are dealing with an uncompensated acidosis and not a compensated alkalosis.

Modification of the Folin and Wu Blood Sugar Determination

DRS. F. A. EVANS, V. E. ROTHBERG and T. M. MABON, Pittsburgh: We dilute the unknown in the test tube in which the reduction has been carried out and the color developed, to match the color of the standard as closely as possible, instead of to the same amount as the standard solution, 25 c.c. The unknown is then read against the standard in the colorimeter as usual, and the amount of dilution of the unknown is made a factor in the final calculation. For this calculation the formula

$$\text{Dextrose in unknown} = 80 \times \frac{\text{dilution}}{\text{colorimeter reading}}$$

has been derived. By this modification, correct values may be obtained for known sugar solutions, and a rather large error eliminated from the Folin and Wu blood sugar determination.

Studies on the Sweat and the Response of the Body to External Heat

DRS. RALPH PEMBERTON, F. A. CAJORI and C. Y. CROUTER, Philadelphia: The physiologic response of the body following from thirty to fifty minute therapeutic exposure to an electric light bake of fourteen arthritis patients and two normal persons consisted of increased alkalinity of the blood, a fall in the total carbon dioxid content of the blood and a small rise in alkali reserve. An alkaline swing of the urine, a decreased hourly ammonia excretion, and an increased alkalinity of the sweat were also observed, which are interpreted as reflecting the changes in reaction of the blood. This change in reaction of the blood would seem to be largely due to a carbon dioxid deficit resulting from a loss of carbon dioxid from the body by way of the lungs and skin. Part of the value of such bakes in nephritis may be in combating the acidosis which sometimes exists. The tendency for an alkalosis as a result of exposure to heat should be mentioned as a possible baneful effect of the extreme use of this form of treatment.

Reaction and Gas Content of the Blood in Lobar Pneumonia

DRS. C. A. L. BINGER, A. B. HASTINGS, J. NEILL and H. J. MORGAN, New York: It may be concluded from our investigations that the occurrence of an abnormal acid-base balance in pneumonia patients, in the sense of an acidosis, is rarely, if ever, encountered; nor are the changes accompanying recovery greater than those occurring as the result of normal physiologic processes. In no case of our series was the administration of sodium bicarbonate indicated.

Arborization of the Right and Left Branches of the Bundle of His in the Human Heart

DR. M. A. ROTHSCHILD, New York: The opportunity afforded itself in securing the heart of a patient dying from suppurative pancreatitis with a marked hyperglycemia. In general, it was found that the arrangements and distribution of the conducting mechanism correspond very closely to the dog's. Practically all parts of the ventricular musculature investigated showed the endocardium lined by arborization.

Infrequency of the Association of Fibrillation of the Auricles and Subacute Bacterial Endocarditis

DRS. EMANUEL LIBMAN and M. A. ROTHSCHILD, New York: It has been noted that in a series of approximately 200 cases of subacute bacterial endocarditis in the active stage, fibrillation of the auricle practically never occurs. In the healed stage of the disease, fibrillation may occur. It has also been noted that patients with fibrillation of the auricle practically never develop bacterial endocarditis. In a general way, disorders of cardiac mechanism are the exception rather than the rule in bacterial endocarditis, while in rheumatic infections disorders of mechanism are exceedingly common. These facts are of diagnostic and prognostic interest.

Basal Metabolic Rate in Untreated Exophthalmic Goiter

DR. LEO KESSEL, New York: A study of the basal metabolism in fifty unselected cases of clear-cut exophthalmic goiter is reported. Forty-six records are complete and show an average initial reading of plus 44 per cent. At the end of three months, six months and twelve months, respectively, the readings are: three months, 28; six months, 22; twelve months, 19. There is, therefore, a tendency in these patients, managed without the institution of specific therapy (spontaneous course), to a rapid, marked and progressive fall in the basal metabolism, which is accompanied by a corresponding fall in the symptoms score, in the exophthalmometer reading, in the neck circumference and by a gain in weight. Coincidently, there is a return to economic and social utility in these patients, all of whom were confronted with great economic strain. The course of the basal metabolism should serve as a normal standard by which specific therapy may be objectively evaluated.

Changes in Shape and Size of Hearts During Progress of Compensation

DRS. J. C. FRIEDMAN and SIDNEY STRAUSS, Chicago: Cardiac compensation may occur without any changes in heart dimensions, with changes only in the great vessels, especially the superior vena cava; with changes in either the right or the left border; or with changes in all diameters. Many of these changes are so slight or so situated as to escape entirely ordinary methods of examination.

Levulose and the Diabetic Metabolism

DRS. E. P. JOSLIN and HOWARD F. ROOT, Boston: Highly purified levulose in amounts proportional to body weight was given to diabetic patients. Levulose ingestion produced a less marked hyperglycemia than dextrose, and a marked rise in respiratory quotient and metabolism followed. Even in severe diabetes, only a small amount of sugar appeared in

the urine after as much as from 75 to 100 gm. of levulose was taken. Pure levulose, 15 gm. in portions of 5 gm., three times daily, or insulin, 15 gm., in the form of artichokes, when added to the diet of a diabetic patient for periods of from one to four weeks did not produce glycosuria.

Copper as a Constituent of Mother's and Cow's Milk: Its Absorption and Excretion by the Infant

DRS. A. F. HESS and G. C. SUPPLEE, New York: The milk of the cow, as well as mother's milk, regularly contains copper. The amount varies somewhat according to the dietary. The copper is absorbed by the infant and partly excreted in the urine. When the dietary includes cereal, larger amounts of copper are excreted.

Cardiodynamic and Electrocardiographic Studies During Various Stages of Heart Failure

DRS. W. W. HAMBURGER and STEPHEN D'IRSAY, Chicago: Measurements of the isometric and isotonic phases of the cardiac cycle were attempted by simultaneous electrocardiographic and phonocardiographic records. For the most part, cases of moderately advanced and advanced heart failure were studied from the time of admission into the hospital until compensation had been restored through rest and digitalis. Variations in heart muscle tonus paralleling variations in cardiac compensation can be detected by such measurements.

Treatment of Migraine with Peptone, and Evidence of Its Anaphylactic Origin

DRS. J. L. MILLER and B. O. RAULSTON, Chicago: Pagniez reports good results in the treatment of migraine by the intravenous injection of peptone. The results of our treatment of twenty-five patients were: nine, much improved; twelve, moderately improved, and four, not benefited.

Blood Volume Studies in Obesity

DRS. N. M. KEITH and G. E. BROWN, Rochester, Minn.: In fourteen definitely obese patients the blood volume was found to vary from the average normal to distinctly low values. Later determinations showed that loss of weight was not always associated with the same changes in blood volume.

Catabolism of Amino-Acids in the Human Organism

DR. K. K. KOESSLER, Chicago: Histidin and tyrosin are decarboxylated almost consistently in the intestinal tract to histamin and tyramin, respectively; or, in other words, histamin and tyramin are normally present in the human intestinal tract.

The Electrocardiogram in Uremia and Severe Chronic Nephritis with Nitrogen Retention

DRS. P. D. WHITE and J. E. WOOD, JR., Boston: Of thirty-seven cases of uremia and severe chronic nephritis with an increased blood nitrogen, all presenting symptoms and signs of coma or impending coma, all except three had nonprotein nitrogen amounting to 60 mg., or over, per hundred cubic centimeters. Nineteen cases showed definite variations from the normal electrocardiogram (other than axis deviation, sinus arrhythmia or tachycardia) which could not be accounted for except by the consideration of a toxic effect of the products of uremia on the heart muscle. These variations were sino-auricular, auriculoventricular and intraventricular block and abnormal T wave changes. It was not determined why these changes occur in some cases of uremia and not in others. Of four of the positive cases coming to necropsy, two presented evidence of glomerulonephritis and two of the arteriosclerotic type of nephritis. Clinically demonstrable edema was present in eight of the positive instances, and albuminuric retinitis in seven. Age and sex were not factors.

Infectious (Catarrhal) Jaundice

DRS. G. R. MINOT and C. M. JONES, Boston: A detailed study of twenty-five cases has been made. The duodenal sediment showed bile-stained pus and epithelium, mucus and inspissated bile, during the early stages of the disease. The duodenal bile pigment output was at first absent or diminished, but later rose to a level of from 100 to 500 per cent. above normal. Abnormal pigments were observed—urobilinogen frequently, cholecyanin rarely. Subsequently the duodenal pigments returned gradually to normal. Rapid clinical improvement immediately followed the peak of the pigment curve. Clinical jaundice disappeared before a normal pigment level was reached. The concentration of the serum bile pigments was practically a direct reciprocal of that in the duodenal contents. Our observations and necropsy findings lead to the assumption that in infectious jaundice there occurs a functional disturbance of the liver cells not unlike that resulting from certain chemical poisons. Such a process explains the persistence of jaundice in the severe cases. The extent of liver damage may be judged by following the pigment output. Blood studies indicate a typical leukocyte reaction characterized by a slight initial polymorphonuclear neutrophilic leukocytosis, followed by a leukopenia, with a gradual return to normal. With the leukopenia occurs an absolute rise in the lymphocytes and large mononuclears. These are most numerous during the period of most marked clinical improvement, with a moderate increase persisting for weeks thereafter. Immature forms of lymphocytes are frequent, and vacuolization of the white cells is a feature, most marked in the mononuclears. A reduction of the red cells is usually found, but the platelets definitely increase with a decrease of the jaundice.

Acute Tonsillitis

DRS. A. L. BLOOMFIELD and A. R. FELTY, Baltimore: A study made of 200 persons among whom tonsillitis is prevalent each winter has shown that acute tonsillitis is almost always an exogenous infection, and that those who are streptococcus carriers are relatively insusceptible.

Toxic Nephritis in Pyloric and Duodenal Obstruction: Renal Insufficiency Complicating Gastric Tetany

DRS. L. G. ROWNTREE and G. E. BROWN, Rochester, Minn.: Eleven patients suffering from a toxemia associated with an anatomic or physiologic stasis in the duodenum have been studied. This duodenal toxemia is characterized by a rather definite clinical picture—urinary changes, changes in the blood chemistry, decreased renal functional capacity, and pathologic changes in the kidney. The clinical picture consists of: (1) the vomiting of large amounts of thin, serous, bile-stained fluid; (2) evidence of dehydration, red, florid complexion, high hemoglobin, low blood pressure and asthenia; (3) tetany-like manifestations, and (4) features of a superimposed uremia; (5) at times evidences of shock. The blood shows (1) a low level of chlorids; (2) a high carbon dioxid capacity, and (3) a high level of blood urea and creatinin. Urinalysis reveals albuminuria and casts. Renal functional studies show high values for urea and creatinin, and a decreased excretion of phenolsulphonephthalein. In six cases, necropsy revealed a nephrosis with characteristic changes in the tubular epithelium or a diffuse nephritis. The chemical findings of the blood are of definite diagnostic and prognostic significance. The treatment is primarily surgical to establish gastrojejunal continuity. When clinical and laboratory findings indicate a poor surgical risk, medical measures are employed, drainage by stomach tube, administration of fluids, chlorids, dietary control and drug therapy.

Observations in a Case of Paroxysmal Auricular Fibrillation Over a Period of Seventeen Years

DR. F. T. FULTON, Providence, R. I.: A man, aged 80, has had these paroxysms for more than twenty years and has been observed carefully for seventeen years. He is free from any evidence of cardiovascular disease and has retained his mental faculties to an unusual degree. The paroxysms, however, have been at times so frequent as to interfere seriously with his activities, and greatly with his mental poise. The electrocardiogram verifies the diagnosis of fibrillation. Two years ago he was given 3 grains of quinidin daily in the morning. During the last eighteen months he has had only three paroxysms, and they have not been of much significance. He had previously been having them on an average of about six or eight a month. He continues to take the quinidin daily.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

64: 203-404 (April) 1923

Effect of a Restricted Diet. IV. On Age of Greatest Productivity. J. R. Slonaker and T. A. Card, Stanford University, Calif.—p. 203.
Studies on Mixture of Air in Lungs with Various Gases. C. Lundsgaard and K. Schierbeck, Copenhagen, Denmark.—p. 210.
Studies on Mixtures of Air in Lungs with Various Gases. II. Quantitative Influence of Certain Factors in Producing Full Mixture of Hydrogen with Air in Lungs. C. Lundsgaard and K. Schierbeck, Copenhagen, Denmark.—p. 231.
Influence of Gonad Hormones on Seminal Vesicles. N. F. Fisher, Chicago.—p. 244.
Blood Pressures and Heart Rate, in Girls, During Adolescence. S. R. Burlage, Ithaca, N. Y.—p. 252.
*Physiologic Assay of Insulin Based on Its Effects on Hyperglycemia Following Glucose Injections and Epinephrin. G. S. Eadie and J. J. R. Macleod, Toronto.—p. 285.
Effect of a Restricted Diet. V. On Mortality, Cannibalism and Sex Ratio. J. R. Slonaker and T. A. Card, Stanford University, Calif.—p. 297.
Vasodilator Mechanisms. IV. Intra-Arterial Injection of Histamin. S. W. Ranson, L. R. Faubion and C. J. Ross, Chicago.—p. 311.
Id. V. Intra-Arterial Injection of Ether. S. W. Ranson, W. F. Windle and L. R. Faubion, Chicago.—p. 320.
*Extraction of Antidiabetic Substance (Insulin) by Perfusion of Pancreas. I. Influence of Neutral or Alkaline Perfusates on Respiratory Metabolism of Depancreatized Animals. J. R. Murlin, H. D. Clough and A. M. Stokes, Rochester, N. Y.—p. 330.
*Id. II. Influence of Acid Perfusates on Blood Sugar, D: N Ratio and Respiratory Metabolism of Depancreatized Dogs. J. R. Murlin, H. D. Clough, C. B. F. Gibbs and N. C. Stone, Rochester, N. Y.—p. 348.
Relative Stimulating Efficiency of Continuous and Intermittent Light in Tachina Fly, Archytas Aterrima. W. L. Dolley, Jr., Ashland, Va.—p. 364.
Relations Between Gastric and Duodenal Persistalsis. W. C. Alvarez and L. J. Mahoney, San Francisco.—p. 371.
*Influence of Temporary Closure of Renal Artery on Amount and Composition of Urine. E. K. Marshall, Jr., and M. M. Crane, Baltimore.—p. 387.

Effect of Insulin on Glucose Hyperglycemia.—A study of the effect of insulin on the postprandial glucose curve of the rabbit made by Eadie and Macleod showed that the hyperglycemia due to injections of glucose is affected by insulin both in degree and duration. A method for the physiologic assay of insulin based on the results is suggested. Figures are given showing the extent of the hyperglycemia produced by epinephrin administered an hour and a quarter after varying doses of insulin.

Extraction of Insulin by Perfusion of Pancreas.—Perfusates of the pancreas of cat, dog and pig were made by Murlin et al. by the method of Clark, employing Ringer's or Locke's solution containing 0.2 per cent. sodium bicarbonate and, at times glucose to 0.5 or 1.0 per cent. In several instances, which are presented in detail, there was a very perceptible increase in the respiratory quotient in animals which just previously had been wholly incapable of oxidizing glucose. This method of extraction (by perfusion with a weakly alkaline fluid) is, however, said to be incapable of withdrawing a sufficient amount of the antidiabetic substance to be of any practical importance. Acid fluids are much more efficacious.

Influence of Perfused Insulin on Blood Sugar.—Insulin is extracted by perfusion of the pancreas with acidulated Ringer's solution more readily than with the same fluid made slightly alkaline. Sufficient concentration of the antidiabetic substance is obtained in this way to show, without further treatment of the material than mere neutralization (to litmus), a precipitate fall in both the blood sugar and D: N ratio of depancreatized dogs, following a single injection of from 25 to 50 c.c. subcutaneously. Following a liberal feeding of glucose and a single injection of perfusate the respiratory quotient has been raised several times from the diabetic level to 0.81-0.85.

Influence of Temporary Closure of Renal Artery on Urine.—Marshall and Crane state that the widespread belief that an anemia of the kidney of short duration produces a prolonged anuria has been found to be untrue. Arguments that have been used against glomerular filtration based on this belief, consequently, do not hold. Certain explanations are suggested from their experiments to explain the discrepancies observed by previous workers. A cessation of the blood flow through the kidney for a short period (one to three minutes) produces no effect on the excretion of the kidney when the circulation is reestablished, except the appearance of protein in the urine. Anemia of longer duration (twenty to twenty-five minutes) produces definite changes in the urine eliminated by the kidney. These changes may be summed up as follows: The elimination of water, chlorid and bicarbonate is unchanged or may be increased, while that of urea, phosphate, sulphate, creatinin and ammonia is distinctly decreased. These results, in conjunction with other data on renal secretion, appear to be best explained by the theory of urinary secretion which embraces glomerular filtration, reabsorption of fluid and certain substances by the tubules, and the secretion of various bodies by the tubular epithelium.

Annals of Clinical Medicine, Baltimore

1: 61-139 (September) 1922

Present Status of Renal Functional Tests. N. M. Keith, Rochester, Minn.—p. 61.
Clinical Study of Cholesterinemia in Patients with Nitrogen Retention. H. B. Schmidt, Detroit.—p. 66.
*Capillary Observations in Cardiovascular-Renal Disease. G. E. Brown, Rochester, Minn.—p. 69.
Diabetes. R. M. Wilder, Rochester, Minn.—p. 80.
*Hemoclastic Shock as Test of Liver Function. T. R. Brown, Baltimore.—p. 89.
Congenital Hemolytic Jaundice. Report of Case. J. Friedenwald and W. H. Gantt, Baltimore.—p. 95.
Diseases of Biliary System. H. R. Hartman, Rochester, Minn.—p. 107.
*Left-Handedness as Educational Problem. A. Caille, New York.—p. 111.
*Food Allergy as Cause of Bladder Pain. W. W. Duke, Kansas City, Mo.—p. 117.
Therapeutic Value of Roentgen Ray. A. U. Desjardins, Rochester, Minn.—p. 127.
Esophageal Obstructions. P. P. Vinson, Rochester, Minn.—p. 138.

Capillaries in Cardiovascular-Renal Disease.—The more severe cases of cardiovascular-renal disease, in a series of fifty, studied by Brown revealed marked variation in cutaneous capillaries. The most constant changes noted were: (1) contraction or narrowing of the arterial and venous limbs, producing a small contracted type of capillary; (2) frequent invisibility of the arterial limb, producing a hook-shaped capillary loop; (3) marked disturbance of the capillary flow, with frequent disappearance of single or multiple loops.

Hemoclastic Shock as Test of Liver Function.—This test, first described by Widal in 1913, has been used by Brown in twenty-five cases of headaches of the so-called "bilious" type, as well as certain cases of migraine and other forms of periodic headache, cases with vague digestive symptoms as, for example, somnolence after meals, anorexia, lack of energy, chronic constipation often spoken of as "biliousness," in which the general and gastro-intestinal findings were not sufficient to account for the symptoms. Ten cases gave positive reactions; five gave what might be regarded as a suggestive reaction; the remaining cases were negative. The most disappointing result was that it was impossible to differentiate clinically those cases that gave positive from those that gave negative reactions. Thus, in the headache group, certain cases with negative findings presented exactly the same clinical picture in every detail as certain of the positive cases. Brown urges greater use of the test in order to establish its real value.

Left-Handedness as Educational Problem.—In view of the probability that left-handedness has a structural, atavistic basis and is not merely an acquired faulty habit, Caillé insists that the disciplinary attitude of parent and teacher toward left-handedness should be adjusted to the degree and character of its manifestations. Mild types in which the stimulus for preferential action is weak, are readily overcome by educational efforts. Conversely, it is not difficult to train the left hand when the use of the right hand is lost through injury or disease. In persistent sinistrality, particularly if combined with speech defects, right-handedness should be encouraged but never forced. Unreasonable discipline creates

an unbalanced condition akin to mental chaos. The correction of eyestrain and of nasopharyngeal obstruction must not be overlooked and hygienic living in its brodest sense is of importance.

Food Allergy as Cause of Bladder Pain.—In patients who have frequent, painful urination or constant pain over the bladder, and the severity of symptoms is frequently out of all proportion to the lesion found after careful examination, the bladder symptoms, in Duke's opinion, are frequently the result of the ingestion of foods to which the patient is sensitive.

Annals of Otology, Rhinology and Laryngology, St. Louis

32: 1-320 (March) 1923

Combined Intranasal and External Operation on Lacrimal Sac. (Mosher-Toti). H. P. Mosher, Boston.—p. 1.
Dacryorhinocystotomy; Combined Method. W. E. Sauer, St. Louis.—p. 25.
Study of Reinforcement of Sound by Means of Schaefer Resonators. J. P. Minton and R. Sonnenschein, Chicago.—p. 45.
Regional Anatomy of Tear Sac. J. M. Patton, Omaha.—p. 58.
Indications, Contraindications and Preparation for Dacryocystorhinostomy. R. A. Fenton, Portland.—p. 67.
Use of Tuning Fork Stem for Both Air and Bone Conduction in Rinne Test. R. Sonnenschein and J. P. Minton, Chicago.—p. 85.
Aural Exostosis. F. A. Burton, Denver.—p. 97.
Consideration of Radical Mastoid. C. M. Sautter, New York.—p. 118.
Case of Polyarthritis Complicating Mastoiditis. Operation. Recovery. D. Roy, Atlanta.—p. 129.
End Results of Radical Operations on Accessory Sinuses. R. H. Skillern, Philadelphia.—p. 139.
Treatment of Otitis Media with Tuberculin. G. T. Von Colditz, Chicago.—p. 149.
Practical Diagnostic Value of Tests of Vestibular Mechanism. F. L. Dennis, Colorado Springs.—p. 160.
Simple Knot for Intranasal Sutures. W. Johnston, Portland, Ore.—p. 201.
Compensatory Nasal Growth. J. A. Pratt, Minneapolis.—p. 211.
Case of Tonsillar Cyst which Protruded from Tonsil as Pedunculated Tumor. A. W. Proetz, St. Louis.—p. 223.
Case of Codein Poisoning. A. W. Proetz, St. Louis.—p. 231.
Two Cases of Salivary Calculus. A. W. Proetz, St. Louis.—p. 233.
Traumatic Facial Diplegia, with Involvement of Sixth Nerves, Portion of Left Third Nerve, Also Fifth and Eighth Nerves, with Dislocation of Atlas, Etc. F. F. Keiper, Lafayette, Ind.—p. 236.
Two Cases of Empyema of Maxillary Sinus of Dental Origin. Alveolar Fistula. Radical and Plastic Operation. J. L. Maybaum, New York.—p. 273.
Chronic Suppurative Otitis Media. H. E. Bozer, Rochester, Minn.—p. 277.
Complications of Paranasal Sinus Disease in Infants and Young Children. L. W. Dean, Iowa City.—p. 285.
Art and Technic of Bronchoscopy and Esophagoscopy. T. Hubbard, Toledo.—p. 298.
Radical Frontal Sinus Operation. Report of Cases. F. O. Lewis, Philadelphia.—p. 305.

Atlantic Medical Journal, Harrisburg, Pa.

26: 429-500 (April) 1923

Goiter: Basal Metabolism. C. E. Ervin, Danville, Pa.—p. 429.
Basal Metabolism: Its Application to Disorders of Thyroid. S. D. Conklin, Sayre.—p. 431.
Adenomatous Goiter. C. B. Noecker, Scranton.—p. 434.
Exophthalmic Goiter. L. A. Sheridan, Wilkes-Barre.—p. 435.
Colloid Goiter. M. J. Noone, Scranton.—p. 436.
Prevention and Treatment of Simple Goiter. D. Marine, New York.—p. 437.
Clinical Determination of Heart Size. J. W. Boyce, Pittsburgh.—p. 443.
*Pulmonary Tuberculosis and Appendicitis. A. Armstrong, White Haven.—p. 446.
*Nasal Diphtheria. J. D. Iams, Pittsburgh.—p. 448.
Mistaken Diagnosis in Cases of Syphilis. J. R. Elliott, Laurel, Del.—p. 451.
Some Comments on Radium Technic. W. H. Guy and F. M. Jacob, Pittsburgh.—p. 453.
Pregnancy and Labor in Very Young and Elderly Primiparas. P. F. Williams, Philadelphia.—p. 456.
Proper Depth of Ether Anesthesia. F. R. Widdowson, Philadelphia.—p. 459.
Retrograde Esophageal Bougie. G. Tucker, Philadelphia.—p. 461.

Pulmonary Tuberculosis and Appendicitis.—In looking up the records of 200 cases of pulmonary tuberculosis admitted to private sanatoriums, Armstrong found that twenty-five of these patients had had appendectomies performed, an incidence of 12.5 per cent. In some there occurred definite attacks, which did not lead to operation. Armstrong pleads for prolonging the convalescence after appendectomy, when the lung condition is not satisfactory, to avoid subsequent activation of the lung lesions if present.

Nasal Diphtheria.—Iams is of the opinion that primary infection of the nasal mucosa with the diphtheria bacillus is not infrequent. It is often exceedingly mild and is not diagnosed because the possibility of its presence is not considered. The symptoms outlined in the average textbook, with the exception of nasal discharge, either do not appear at all or are late symptoms and are evident only after some days. The theory as to the extreme toxicity of this type was derived largely from the fact that only advanced and serious cases were diagnosed. The mortality is at least no higher than in the faucial type if sufficient antitoxin be given. All cases of severe rhinitis, particularly if unilateral, should be cultured. Until importance is given to nasal culture equal to that now given to throat culture, many unexplained infections are bound to occur. Since many cases are undiagnosed, epidemics will not be controlled until more intensive nasal culturing is done and its importance recognized.

Boston Medical and Surgical Journal

188: 567-616 (April 19) 1923

*Student Form of Respiration Apparatus. F. G. Benedict and C. G. Benedict.—p. 567.
Etiology and Clinical Features of Lung Abscess. J. Homans, Boston.—p. 577.
Clinical Importance of Chronic Changes in Appendix Which Are Discovered by Roentgen Ray. F. W. White, Boston.—p. 587.
*Eventration of Diaphragm. Report of Case. A. E. Jaffin, Jersey City, N. J., and J. A. Honeij, Boston.—p. 593.
Chronic Urethritis in Women. C. R. Cote and G. G. Smith, Boston.—p. 596.

Student Form of Respiration Apparatus.—To aid in introducing to medical students the fundamentals of gaseous metabolism measurements, a simple type of apparatus is described by the Benedicts involving the breathing of a confined volume of oxygen-rich air and measuring exactly the amount of oxygen absorbed by the lungs of the subject. A can, two-thirds filled with soda-lime, a bathing cap for expansion, two "Sadd" valves and housings, with rubber hose and mouthpiece, comprise the respiration system. Dry room air is forced quantitatively by an automobile grease gun, acting as an air pump, into the can as the oxygen is absorbed. From the volume of six full strokes of the air pump, the temperature of the pump, the barometer, and the time in minutes, the actual oxygen consumption is rapidly computed. The apparatus is said to lend itself also to the determination, by students, of vital capacity.

Eventration of Diaphragm.—A patient with objective symptoms pointing to inactive upper lobe lesions in both lungs with marked pleural changes at the left base, suddenly presented tympanitic resonance from the left lung base to the second rib, with absence of vocal resonance and breath sounds from the base to the third rib. Over this area many gurgling, musical and tinkling sounds could be heard, some resembling peristaltic noises. Succussion was audible and palpable. The signs suggested a hydropneumothorax, but there was complete absence of any clinical history that might account for its development. The roentgen-ray examination disclosed a congenital deformity and displacement of the left side of the diaphragm with adherent and displaced stomach. In further support of the theory of congenital origin, Jaffin and Honeij state there was a noticeable facial asymmetry, due to a greater prominence of the left malar bone, and a strikingly increased development of the left trapezius muscle. There was a slight scoliosis from the seventh cervical to the fourth dorsal spines which was probably secondary.

188: 617-664 (April 26) 1923

*Obesity: Observations on One Thousand Cases. W. E. Preble, Boston.—p. 617.
Cancer of Prostate. G. G. Smith, Boston.—p. 621.
Convalescence: III. Chronological Review, from 1877 to 1917. J. Bryant, Boston.—p. 625.
Fracture Table and Fluoroscopy in Difficult Fractures. H. M. Cline, Boston.—p. 630.
Cholesterol Content of Bile in Health and Disease. I. Methods for Collection and Estimation in Duodenal Contents of Man. C. W. McClure and E. Mortimer, Boston.—p. 633.
Value of Treatment in General Paresis. H. C. Solomon, Boston.—p. 635.
Percentile Charts of Height and Weight of Boston School Children. W. T. Porter, Boston.—p. 639.

Heels of Boston School Children. W. T. Porter, Boston.—p. 644.
Progress in Cardiovascular Disease. Part III. P. D. White, Boston.—p. 644.

Etiology of Obesity.—Preble is convinced that obesity is almost invariably due to bad dietary habits, and not to errors in metabolism or to heredity. Overweight of 15 or more pounds is an increasingly serious condition with advancing years, conducive to heart, arterial and kidney disease, diabetes and hypertension. Obesity is easily curable, and it is the duty of the physician to acquaint his patient and the community with the gravity of the condition, and the ease with which it can be controlled. Regulation of the diet is the important thing. Only in rare cases is glandular or other drug therapy indicated. The cause of obesity may be simply too much food, but it is more apt to be an excess of carbohydrate or fat, or both, in the diet. The diet and daily habits as regards work, exercise, sleep, etc., of the individual patient must be scrutinized carefully, and excesses corrected. Care should be taken that the patient receives enough proteid, otherwise weakness will result. A rather high proteid diet, from 90 to 110 gm., is prescribed, except for nephritics, in which class the amount is regulated according to kidney function.

188: 665-710 (May 3) 1923

*The Silent Kidney. J. D. Barney, Boston.—p. 665.
*Importance of Pyelography in Recognizing the Causes of Obscure Abdominal Symptoms. R. F. O'Neil, Boston.—p. 671.
*Kinks of Ureter Due to Aberrant Vessels. A. H. Crosbie, Boston.—p. 678.

The Silent Kidney.—Barney discusses the comparative "silence" of the kidney, even in the presence of extensive and long-standing disease. The most important lesson to be derived from this study is that cystitis, hematuria and pyuria are symptoms, and not diseases. While what is apparently primary cystitis may occasionally be seen, it is probable that the underlying cause has gone unobserved owing to careless or faulty methods of examination. The same is true of pyuria and hematuria. Another important observation is that pain, and even tenderness, is often complained of only in the sound kidney, its diseased mate giving no subjective symptoms whatever. Almost any disease of the kidney may begin and end without once calling attention to the organ involved; on the other hand, localizing symptoms may be of extremely short duration.

Pyelography in Abdominal Conditions.—Pyelography is regarded by O'Neil as a very reliable diagnostic procedure and one which should be employed in all doubtful cases of abdominal tumor, or of chronic or paroxysmal abdominal pain before resorting to exploratory operations.

Ureteral Kinks Due to Aberrant Vessels.—According to Crosbie, various types of the obstruction produced by aberrant kidney vessels should always be suspected until proved not to exist. There is no cardinal symptom, except in the very acute cases. The best way to detect kinks is by taking pyelograms with the catheter partially withdrawn. Judgment must be used in cutting large vessels going to the lower pole of the kidney. A very large vessel should not be cut unless very definite obstruction can be demonstrated.

Florida Medical Association Journal, St. Augustine and Jacksonville

9: 144-159 (March) 1923

Vertigo and Ear. A. K. Wilson, Jacksonville.—p. 144.
Practical Suggestions to Health Officers in Malarial Control. A. C. Hamblin, Tampa.—p. 145.

Illinois Medical Journal, Oak Park

43: 253-332 (April) 1923

Major Infections. W. J. Mayo, Rochester, Minn.—p. 283.
*New Operation for Femoral Hernia. E. Andrews, Chicago.—p. 290.
Lipoids. H. Isovesco, Paris, France.—p. 292.
*Early Diagnosis of Chronic Cardiac Conditions. J. A. E. Eyster, Madison, Wis.—p. 297.
Intracranial Complications of Suppurative Sphenoid Sinus Disease. With Report of Seven Cases. C. F. Yerger, Chicago.—p. 304.
Perforative Appendicitis. O. L. Pelton, Jr., Elgin, Ill.—p. 308.
*Atypical Exophthalmic Goiter. I. Bram, Philadelphia.—p. 311.
Interpretation and Diagnosis of Gross Lesions Within Lungs. R. H. Hayes, Chicago.—p. 314.
Where Field of Oculist Meets That of Practitioner. B. Y. Alvis, St. Louis.—p. 319.
Salient Points in Diagnosis and Treatment of Cancer of Uterus. A. H. Curtis, Chicago.—p. 323.

Operation for Femoral Hernia.—When the ring is very large and rigid or when it has to be enlarged at operation in order to reduce the hernia, leaving a defect very difficult to close by the ordinary methods, Andrews closes the upper end of the femoral canal with a strip of the aponeurosis of the external oblique muscle, by turning it into this space and attaching it to the periosteum of the pubic bone just above the pectineal line. The upper fragment of the external oblique is sewed to Poupart's ligament. The advantages of this method are said to be: (1) the closure of the canal is made at the upper end, leaving no pouch; (2) a stronger membrane is used than in any other operation; (3) the rigid and inelastic walls of the ring are not used, but instead structures that can be sutured together without the slightest tension being put on them.

Early Diagnosis of Heart Lesions.—Eyster emphasizes, first, the importance of careful evaluation of etiology and symptomatology; second, the necessity of a general systematic routine physical examination; third, the importance of accurate percussion; fourth, the value of a comprehensive roentgen-ray examination in doubtful cases, and finally the significance of the electrocardiogram in diagnosis. The most generally neglected of the aids to diagnosis, he believes, is the roentgen ray. It is the one method which gives, imperfect as it is at present, the most accurate knowledge of the form and contour of the organ, the type of information which is of most value in leading to a correct diagnosis.

Atypical Exophthalmic Goiter.—The following definition is offered by Bram for exophthalmic goiter: Exophthalmic goiter (Graves' disease; Basedow's disease; Parry's disease, Flajani's disease) is a chronic (rarely acute) affection, apparently due to a dysfunction of the endocrine organs and of the vegetative nervous system, characterized by increased catabolism, weakness, wasting, emotional disturbances, and frequently by a varying degree of exophthalmos and thyroid swelling. From this definition it can be seen that (1) the constant evidences of the clinical picture are plus basal metabolism, weakness, wasting, emotional disturbances, afebrile heart hurry, tremor, and dermographia; and (2) the inconstant evidences are exophthalmos and goiter.

Indiana State Medical Association Journal, Ft. Wayne

16: 115-156 (April) 1923

Heart Disease: Its Modern Conception and Treatment. G. W. McCaskey, Ft. Wayne.—p. 115.
Occiput Posterior. A. M. Mendenhall, Indianapolis.—p. 121.
Thyroid Disease. A. C. Roope, Columbus.—p. 125.
*Fracture Hazards. M. A. Austin, Anderson.—p. 129.
Brief Review of Otology to Beginning of Nineteenth Century. C. H. McCaskey, Indianapolis.—p. 132.
Medical Practitioner and American Society for Control of Cancer. J. E. Rush.—p. 135.

Treatment of Fracture of Upper End of Humerus.—Austin reports three cases. One of these was a case of fracture of the right humerus, 2 inches from its upper end, with abduction of the upper fragment and upward displacement of the lower fragment. Three attempts were made to secure apposition of the bone ends, and only after the arm was placed in complete extension was approximation secured. To hold the fragments in this position and keep the arm in extension, Austin immobilized the patient in bed with the arm in complete abduction. A long straight splint was made and padded to extend from the tips of the fingers, under the back, as far as his elbow on the opposite side. The arm was bandaged snugly to the splint from fingers to axilla. In order to keep traction on the extended arm a sling was placed around the chest at the axilla and fastened to the end of the board on the side opposite to the fracture. When this sling was tightened up, it pushed the injured arm away from the body and prevented the fragments from overriding. The boy was kept flat on his back for four weeks, without any special discomfort, and the final picture, taken seven months after the accident, showed an apposition so perfect that even the fracture line could not be seen. Scudder states it is practically impossible to reduce and retain this type of fracture of the humerus without an open operation and wiring of the bone ends. Austin believes that this crucifixion splint and

putting the patient to bed, reduces the treatment of fractures of the humerus to the minimum of simplicity, and gives the certainty of a better result than any ambulatory immobilization that can be devised.

Iowa State Medical Society Journal, Des Moines

13: 121-176 (April) 1923

Diminishing Accommodation, Artificially Produced. R. F. French, Marshalltown.—p. 135.
Abscess of Lung. W. W. Bowen, Dodge.—p. 142.
Bacterial Relationship to Stone Formation. O. C. Morrison, Carroll.—p. 145.
Points in Diagnosis of Chronic Gallbladder Disease. C. D. Enfield, Louisville, Ky.—p. 148.
Traumatic Valgus with Dislocation in Lisfranc's Joint. A. F. O'Donoghue, Sioux City.—p. 151.
Doctrine of Prepared Soil: Neglected Factor in Surgical Infections. H. Cabot, Ann Arbor, Mich.—p. 153.
Physicians Who Located in Iowa in Period Between 1850 and 1860. D. S. Fairchild, Clinton.—p. 158.

Kansas Medical Society Journal, Topeka

23: 85-112 (April) 1923

Glucose Tolerance Test in Diabetes. C. F. Menninger, Topeka.—p. 85.
Goiter. J. T. Axtell, Newton.—p. 90.
Extra-Genital Chancres. H. G. Collins, Topeka.—p. 92.

New York Medical Journal and Medical Record

117: 453-516 (April 18) 1923

*Radium in Carcinoma of Breast. Necessary Preoperative Routine. G. S. Willis, New York.—p. 453.
Toxemic Aspect of Ocular Disease. P. Dunn, London.—p. 457.
Epidemic Encephalitis. Mental Symptoms, Loss of Abdominal Reflexes and Myoclonus. I. S. Wechsler, New York.—p. 458.
Etiology of Neuroses. A. Polon, New York.—p. 460.
Clinical Significance of Eosinophilic Cells of Blood. A. J. Hinkleman, Oklahoma City, Okla.—p. 465.
Influence of Local Blood Supply on Crisis and Lysis in Pneumonia. G. G. Ornstein and A. Braunstein, New York.—p. 466.
Etiology and Pathogenesis of Anal Pruritus and Pruritus Ani. J. F. Montague, New York.—p. 469.
Fracture of Head and Neck of Radius. J. Grossman, New York.—p. 472.
Indications for Transfusion of Blood. I. S. Ravdin, Philadelphia.—p. 475.
*Improved Method for Diagnosis and Localization of Duodenal and Gastric Ulcers. S. L. Cash, New York.—p. 478.
New Frontal Sinus Instrument. J. A. Hagemann, Pittsburgh.—p. 480.
Bacterial Vaccine Immunization Under Bacterial Intoxication. G. H. Sherman, Detroit.—p. 481.
Dawn of Surgery. J. Wright, Pleasantville, N. Y.—p. 483.
John Owen's Epigrams on Medicine and Medical Men. W. R. Riddell, Toronto, Can.—p. 487.
Medical Germany. M. R. Robinson, New York.—p. 491.
W. E. McGuire. B. R. Tucker, Richmond.—p. 495.

Radium Therapy of Breast Carcinoma.—Willis points out that radium, postoperatively and in recurrences, has given such results in these cases as to justify its use, but that the most successful results will be obtained when radium is used as a routine measure, preoperatively. The preoperative use of radium disintegrates the tumor mass and cell nests and forms fibrous tissue masses which block off the lymphatics and prevent the dissemination of the tumor cells. Willis uses what he terms a transfixion needle, 15 cm. long, containing 33.33 mg. of radium.

Better Diagnosis of Gastric and Duodenal Ulcers.—Cash's method is based on the Einhorn string test. To remove the objections to that test, he uses a thread made from a loosely knitted tubular silk braid. It is white, flexible, compressible and half an inch in diameter. The test consists of two parts; the upper, extending from the teeth, is a silk string, preferably No. 15 twisted silk. The lower part of the test is a section of the braid. The features of the braid are: (1) a large surface for contact, with large stains for gross, chemical, and microscopic examination; (2) size and compressibility permit contact with irregular surfaces; (3) size and texture prevent cutting of the tissues; (4) compression of the braid by the pylorus localizes this part and thereby the lesion, whether duodenal, gastric or pyloric; (5) passage through is also shown by bile stain, in conjunction with the pyloric and other markings on the braid; (6) it is useful in testing the progress of healing and for post-treatment observation; (7) elimination of the cup and bulb which, in aggravated ulceration at least, are objectionable; when the roentgen rays reveal the lesion, the braid determines whether it is acute or chronic; (8) the braid, proportioned for the stomach, has free play in contrast to the string test that extends into the duodenum with a bead or cup attached.

Northwest Medicine, Seattle

22: 115-150 (April) 1923

Recent Progress in Treatment of Chronic Empyema. C. A. Hedblom, Rochester, Minn.—p. 115.
Pleural Effusions. J. D. Sternberg and W. H. Watson, Portland.—p. 119.
Duodenal Ulcer. M. F. Dwyer, Seattle.—p. 122.
Gastric and Duodenal Ulcer, Medical and Surgical Aspects Preoperative and Postoperative Treatment. J. R. Turner, Jr., Tacoma.—p. 126.
Prostatic Obstructions. H. W. Howard, Portland.—p. 129.
Complications and Mortality Causes Following Prostatectomy. W. G. Schulte, Salt Lake City.—p. 132.
Megacolon: Two Cases. A. A. Matthews, Spokane.—p. 135.
Trachoma (Granular Conjunctivitis, Chronic Ophthalmia) Among Ute Indians. F. C. Myers, Whiterocks, Utah.—p. 138.
Resuscitation of Asphyxiated Infants. New Use for Politzer Bag. H. Feagles, Chehalis, Wash.—p. 139.
Twin Feti Papyracei with Third Living Child. C. C. Wallin, Lewiston, Mont.—p. 140.

Philippine Journal of Science, Manila

22: 219-344 (March) 1923

Investigations Concerning Yaws. A. W. Sellards and E. W. Goodpasture and W. de Leon.—p. 219.
*Effect of Treatment on Wassermann Reaction in Yaws. E. W. Goodpasture and W. de Leon.—p. 221.
*Immunity in Yaws. A. W. Sellards and E. W. Goodpasture.—p. 233.
Public Health Aspects of Yaws. A. W. Sellards.—p. 251.
*Histology of Healing Yaws. E. W. Goodpasture.—p. 263.
Control of Yaws. A. W. Sellards and E. W. Goodpasture.—p. 285.
Woods of Philippine Dipterocarps. L. J. Reyes.—p. 291.

Effect of Treatment on Wassermann Reaction in Yaws.—Goodpasture and de Leon found the Wassermann test strongly positive in 100 per cent. of forty-five patients presenting active cutaneous lesions of yaws. Following the clinical cure of yaws by means of intravenous injection of neo-arsphenamin, the Wassermann reaction remained positive for many months, gradually weakened, and became negative in seven of twelve cases within six months after treatment. Treatment of yaws in the early secondary stage with mercury caused no noticeable improvement in the lesions. The Wassermann reaction showed an initial slight weakening in the titer, then remained constant and strongly positive. An antigen prepared from an early case of yaws containing treponemata did not fix complement with serum from yaws patients that was strongly positive with the usual cholesterinized antigen.

Immunity in Yaws.—A patient, in the well developed secondary stage of yaws, was successfully reinoculated with yaws; the lesion soon regressed spontaneously. Two patients in the stage of clavos were reinoculated with yaws. The lesions that developed disappeared very rapidly. Sellards and Goodpasture believe that the reinoculation of untreated patients suggests that a long standing infection with yaws produces a definite, though not complete resistance to reinfection. Four patients in the secondary stage of yaws were treated with neo-arsphenamin and reinoculated with yaws several months later. In one, a typical granuloma was produced; in the other, three atypical reactions resulted. The results of reinoculation of patients cured with neo-arsphenamin indicate the development of a measurable degree of active immunity in yaws. No evidence was obtained to suggest that the serum of yaws cases under treatment with neo-arsphenamin has any curative action when injected into yaws patients.

Histology of Yaws.—Goodpasture has demonstrated *Treponema pertenue* in abundance by Levaditi's method in early yaws, not only within the thickened epidermis as heretofore observed, but also within perivascular connective tissue of the papillae. The lesions studied indicate that the secondary yaw begins with a localization of treponemata, from the blood, in certain papillae, and from such points the organisms infect the epidermis, where conditions become more favorable for their growth. Within forty hours after the injection of a therapeutic dose of neo-arsphenamin all treponemes demonstrable by Levaditi's method had disappeared from early yaws. The older secondary nodular lesions have a more permanent architecture, heal less rapidly, and probably offer greater protection to treponemes; consequently, they require more care in effecting a complete cure.

Public Health Journal, Toronto

14: 147-194 (April) 1923

Pasteur and Science of Bacteriology. J. G. Fitzgerald.—p. 147.
Hydrophobia: Four Centuries Ago. W. R. Riddell.—p. 155.
Schick Campaign and Its Lessons. H. G. Rowell.—p. 168.
Some Clinical Aspects of Industrial Poisoning. N. C. Sharpe.—p. 172.
Venereal Diseases in Industry. J. J. Heagerty.—p. 175.

Surgery, Gynecology and Obstetrics, Chicago

36: 447-588 (April) 1923

*Radical Operations on Stomach with Especial Reference to Mobilization of Lesser Curvature. W. J. Mayo, Rochester, Minn.—p. 447.
*Surgical Treatment of Ulcer of Stomach and Duodenum. H. Finsterer, Vienna, Austria.—p. 454.
*Mortality in Surgery of Exophthalmic Goiter. J. de J. Pemberton, Rochester, Minn.—p. 458.
*Operative Treatment of Embolism of Large Arteries. Report of Two Cases. L. Buerger, New York.—p. 463.
*Diverticulitis of Gallbladder. G. K. Abbott, Sanitarium, Calif.—p. 466.
Angiomyoma of Urinary Bladder. F. Kidd and H. M. Turnbull, London, England.—p. 467.
Primary Carcinoma of Urethra. Report of Three Cases. H. Culver, and N. K. Forster, Chicago.—p. 473.
*Primary Retroperitoneal Sarcoma. Report of Twenty-Eight Cases. C. L. Andrews, Rochester, Minn.—p. 480.
Clinical Picture of Dilated Ducts Beneath Nipple Frequently to be Palpated as Doughy Worm-Like Mass—Varicocele Tumor of Breast. J. C. Bloodgood, Baltimore.—p. 486.
Pseudohermaphrodism or Complete Hypospadias. F. R. Hagner and H. B. Kneale, Washington.—p. 495.
*Complication of Purpura with Gestation. G. C. Mosher, Kansas City, Mo.—p. 502.
Germicides and Presentation of a New Germicide—Meroxyl. H. H. Young, E. C. White, J. H. Hill and D. M. Davis, Baltimore.—p. 508.
Cholecystitis and Its Complications. M. G. Peterman, Rochester, Minn.—p. 522.
*Traumatic Shock; Some Experimental Work on Crossed Circulation. M. A. McIver and W. W. Haggart, Boston.—p. 542.
Pathologic Study of Case of Cirsoid Aneurism. F. L. Meleney, Peking, China.—p. 547.
Compensatory Hypertrophy of Fibula. A. Gibson, Winnipeg, Man.—p. 554.
*Traction Fracture of Lesser Trochanter. J. F. Langdon, Omaha.—p. 556.
Two Kineplastic Problems Solved. G. B. Arana, D. D. Valle, Buenos Aires, Argentine, and F. Wildermuth, Frankfurt, Germany.—p. 559.
Utilization of Rubber Catheter in Intestinal Anastomosis. E. J. Horgan, Washington, D. C.—p. 565.
Device for Hemostasis and Drainage Following Suprapubic Prostatectomy. J. H. Cunningham, Boston.—p. 569.
Modification of Rubin Technic for Transuterine Inflation of Fallopian Tubes. A. Jacoby, New York.—p. 571.
Treatment of Postoperative Nausea, Vomiting and Distention in Certain Abdominal Sections by Use of Modified Duodenal Tube. C. L. A. Oden, Chicago.—p. 572.

Radical Operations on Stomach.—Proper mobilization of the lesser curvature of the stomach, Mayo says, is the most important single step in radical operations on the stomach. Experience has led him to the acceptance of the Billroth I operation as a primary procedure to be used in cases of ulcer and carcinoma situated on the lesser curvature and pyloric end of the stomach in such a manner as to permit the application of the method. After the application of the Billroth I method, there is a tendency for the stomach to drop to the left of the spine, its weight exerting an injurious strain on the suture line uniting the end of the duodenum to the gastric stump. This difficulty has been overcome in these cases and also in cases in which, following excision of gastric ulcers or a Finney pyloroplasty, there is tension due to the dropping of the stomach as a whole to the left of the spine. A point on the anterior wall of the stomach, sufficiently far to the left, is chosen, the stomach is drawn to the right and attached to the suspensory ligament of the liver by several catgut sutures in a manner to bring the entire anastomosis to the right of the spine. There has been no suture leakage and gastroduodenal drainage is greatly improved.

Surgical Treatment of Ulcer of Stomach and Duodenum.—In the last seven years Finsterer has performed gastro-enterostomy only exceptionally in the treatment of gastric and duodenal ulcer, as, for instance, in the case of an acute perforation with peritonitis, or in certain cases of acute hemorrhage in a duodenal ulcer. While, up to 1914, he had performed ninety-eight gastro-enterostomies and only nineteen resections, the latter chiefly for suspected cancer, he has since performed only forty gastro-enterostomies as against 427 resections. Acute ulcer will heal spontaneously or by medicinal treatment and, Finsterer says, should be treated that way, the stomach ulcer as well as the duodenal ulcer. He operates on the chronic ulcer when repeated medical treatment fails to cure it, and when the recurring attacks with accompanying pain invalidate the patient. He has never observed malignancy in a duodenal ulcer. The mortality in resections is not larger than after gastro-enterostomy. Finsterer has now, in 407 cases, a mortality of 4.4 per cent., of which the greater portion was due to insufficient asepsis. Since 1919, he has operated in 296 cases, with a mortality of 2.3 per cent. In the gastro-enterostomy of the posterior type with a short loop, the mortality was 11.8 per cent. in 144 cases. Excluding the cases of operation for acute hemorrhage, there remain 113 cases with 4.4 per cent. mortality.

Mortality in Surgery of Exophthalmic Goiter.—The mortality rate following surgical procedures on patients with exophthalmic goiter, Pemberton states, has been reduced to 1.005 per cent. in terms of operation and 1.73 per cent. in terms of patients. The patients with visceral degenerative changes form the largest part of the mortality list in the surgery of exophthalmic goiter. The operative risk is less and the benefits derived are greatest when the patient comes to surgery early in the course of the disease before degenerative changes have occurred. The avoidance of operative and postoperative complications by painstaking care of details in the management of surgical cases is essential to a low mortality rate in cases of exophthalmic goiter.

Operative Treatment of Embolism of Large Arteries.—Buerger reports a case of successful removal of an embolus from the brachial artery about five or six hours after its lodgment, with complete restoration of the circulation through the normal vascular paths, until death, which occurred nine days after the operation. In a second similar case the patency of the arterial channels situated at some distance from the site of the removed embolus could not be restored.

Diverticulitis of Gallbladder.—The remarkable feature in Abbott's case was the presence of a markedly inflamed diverticulum arising from the neck of the gallbladder—the entire gallbladder otherwise being normal in appearance.

Primary Retroperitoneal Sarcoma.—Retroperitoneal sarcoma is seen so often, in Andrews' opinion, that the condition should be kept in mind in the diagnosis of abdominal disorders. Trauma is apparently not a factor in the cause of retroperitoneal sarcoma. Metastasis occurs in about 33 per cent. of cases; it is most often found in the liver and lungs. The most characteristic physical finding is the colon in a groove on the anterior surface of the tumor. The small round cell sarcoma or lymphosarcoma is the most common and most malignant type. The prognosis is always unfavorable. A combination of radium and roentgen-ray treatment seems to be the most satisfactory treatment thus far instituted.

Complication of Purpura with Gestation.—Purpura is a very rare complication of pregnancy; the fortieth case in the literature is recorded by Mosher. The fetal mortality is 50 per cent. Nearly all cases of purpura hemorrhagica which go to term end fatally at delivery, or soon after labor, from hemorrhage. No drug therapy is of the slightest avail. Direct transfusion of blood, keeping the platelet count over 10,000, is the only remedy. Repeated transfusion may be necessary to tide the patient over the period in which her platelet count is reduced.

Nature of Traumatic Shock.—The experimental evidence obtained by McIver and Haggart—which is fully reported here—suggests that some substance capable of producing shock is taken up by the circulation from a traumatized area.

Traction Fracture of Lesser Trochanter of Femur.—The case reported by Langdon differs in some respects from other cases hitherto published. Marked pain was conspicuous by its absence. At no time did it occupy the foreground in the clinical picture. Three days after the injury, though loss of flexion was absolute, the patient nevertheless could bear his weight on the injured limb without any evidence of pain. Passive motions were possible in all directions and not painful. Loss of flexion in this case seemed to be more marked than in the cases previously published. The probabilities are that the complete attachment of the muscle to

the shaft was torn away, together with the trochanter, resulting in total loss of flexion.

Virginia Medical Monthly, Richmond

50: 1-70 (April) 1923

Transduodenal Drainage of Gall Tract. W. B. Martin, Norfolk.—p. 1.
Factors Often Overlooked in Treatment of Disease. T. A. Williams, Washington, D. C.—p. 6.
Early Recognition of Gallbladder Disease. E. L. Kendig, Victoria, Va.—p. 15.
Vascular Occlusion of Mesenteric Vessels. Three Cases. J. W. Tankersley, Greensboro, N. C.—p. 20.
*Mesenteric Thrombosis. Report of Two Cases. S. McGuire, Richmond.—p. 23.
Diagnosis of Intestinal Parasitic Infection. T. D. Davis, Richmond.—p. 26.
Stricture of Ureter. A. I. Dodson, Richmond.—p. 28.
Urological Diagnosis from Standpoint of General Practitioner. L. T. Price, Richmond.—p. 30.
Roentgen Ray as an Adjuvant in Treatment in Advanced Cases of Carcinoma of Stomach. C. R. Robins, Richmond.—p. 33.
Progress of Malaria Control in Virginia. L. L. Williams, Jr., and C. A. Kane.—p. 34.
Case of Acute Exophthalmic Goiter Treated Successfully by Use of Roentgen Ray. M. D'Arcy Magee, Washington, D. C.—p. 37.
Case of Secondary Carcinoma of Lung with Pulmonary Tuberculosis. J. T. Scott, Colorado Springs, Colo.—p. 39.
Studies in Hay-Fever: Dates of Pollination of Anemophilous Plants in District of Columbia and Vicinity, Observed in 1922. H. S. Bernton, Washington, D. C.—p. 41.
Clinical Significance of Reductions in White Cells of Human Blood. W. B. Blanton, Richmond.—p. 43.
Eye Pathology of Dental Origin. W. W. Gill, Richmond.—p. 48.
Abscess of Temporosphenoidal Lobe Complicating Acute Mastoiditis: Operation: Recovery. E. G. Gill, Roanoke.—p. 51.

Mesenteric Thrombosis.—The diagnosis of mesenteric thrombosis, McGuire says, is extremely difficult. There is no symptom-complex of the disease, and it is rarely recognized before operation or necropsy. Fortunately, the condition is so acute and urgent that an exploratory operation is plainly indicated. When the peritoneum is opened, there is usually an escape of a considerable quantity of dark colored or bloody fluid which makes it evident that the disease is not appendicitis, cholecystitis or a gastrojejunal perforation. The distended black coils of gangrenous bowel are most commonly found in the pelvis or lower abdomen. The operation of choice is resection of the diseased bowel, followed by the restoration of the continuity of the intestinal canal by an anastomosis of the divided ends. If the general condition of the patient renders this impracticable, then the gangrenous portion of the bowel should be excised and the two cut ends drawn out of the abdomen and fastened to the edges of the wound, with the hope that a secondary anastomosis may be done later. In doing the resection, great care should be taken to divide the intestines well outside the infected area in tissue with good blood supply.

Wisconsin Medical Journal, Milwaukee

21: 483-534 (April) 1923

*Myocardial Deficiency from Surgical Standpoint. J. L. Yates, M. F. Rogers and R. E. Morter, Milwaukee.—p. 483.
Special Features of Radium Therapy in Gynecology. A. H. Curtis, Chicago.—p. 498.
*Unusual Fetal Monstrosity. M. H. Clark, Ripon.—p. 500.

State of Myocardium Is Index of Age.—Yates and his associates question the truth of the old dictum that a man is as old as his arteries without considering the more significant fact that age itself is of little moment. The real issue is total accomplishment, which is commensurate with the length and character of life and is determined largely by the functional capacity of heart muscle. The causes of cardiac incompetence or myocardial deficiency are heart muscle lesions. Their deleterious effects on function are commensurate with the acuteness and diffuseness of the process, or, when focalized, with the significance of the rôle played in cardiac function by the part affected. Influences inimical to normal heart muscle structure are: overacidity, inadequate nourishment and intoxication. They frequently operate in conjunction and are likely to initiate or aggravate progressive anatomic lesions and, therefore, to promote increasing cardiac handicaps. The requirements to be met in practice are two: (1) diagnostic means to determine the presence and degree of myocardial injuries and (2) a simplification of preoperative, operative and postoperative methods designed to safeguard the more severe lesions and to be at least harmless for the less severe. Protective methods now available are to postpone operation if possible until competence is regained, to reduce the amount of narcotics given and to administer fluids intravenously and generously and at times give digitalis before there is any evident necessity. Fluids suitable for intravenous injection are blood, hypertonic glucose and glucose and gum acacia solutions. The amount and rapidity of administration are determined by circumstances which also indicate the need of digitalis and the amount to be given. Preparation for operation cannot be made a routine. Patients with weak hearts should be given necessary rest in bed, cajoled into complacency and assured the proper quantity and quality of blood. Too little preparation, particularly of those who recently have had a severe intoxication, as from tonsillitis, or too prolonged preparation of those having chronic obstructive intestinal lesions, are to be avoided. The average patient does not need catharsis. Sleep is so desirable that soporific drugs are indicated. There is no excuse for making the morning of operation hideous by early awakening for shaving, enemas and other forms of avoidable cruelty. Quiet is to be secured after the preliminary drugs are given, and, above all, patients should, so far as possible, be made physically and mentally inactive. Postoperative care is more effective if conducted prophylactically rather than curatively. Blood, glucose, gum-glucose, with or without digitalis, provide the best means to prevent serious tachycardia. Preferably, the aftercare should be permanently under the direction of a competent internist.

Fetal Monstrosity.—There were present in Clark's specimen the following abnormalities: (1) complete hydrencephalocele; (2) spina bifida, without tumor; (3) umbilical hernia of the abdominal contents—enterocele; (4) double talipes equinovarus; (5) left knee without joint structures.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 617-666 (April 14) 1923

New Midwifery: Preventive and Reparative Obstetrics. The Late J. W. Ballantyne.—p. 617.
Sinuses and Swellings in Necks of Children. G. Morgan.—p. 621.
Man's Posture: Its Evolution and Disorders. A. Keith.—p. 624.
Venous Pulsations and Venous Tracings in General; Special Reference to "V" Wave of Polygraphic Tracing. H. Sainsbury.—p. 626.
*Chronic Intussusception Due to Carcinoma of Sigmoid. G. A. Ewart.—p. 629.
Quinin Idiosyncrasy and Cinchonin. W. Fletcher and E. A. O. Travers.—p. 629.
*Pulse Pressure in Exophthalmic Goiter. I. Harris.—p. 630.

Chronic Intussusception Due to Carcinoma of Sigmoid.—In Ewart's case, intussusception had existed for more than a year without any evidence of carcinoma other than the subjective symptom of "something inside the rectum" constantly. Ewart suggests the advisability of suspecting the presence of a growth in all cases of large intestine intussusceptions in adults.

Pulse Pressure in Exophthalmic Goiter.—In the twelve cases reported on by Harris the pulse pressure varied from 40 to 80. The lowest diastolic pressure was 50; the highest, 95. The highest systolic pressure was 170; the lowest, 120. Increase in pulse rate and at the same time a high pulse pressure, Harris says, is characteristic of these cases.

1: 667-704 (April 21) 1923

Chronic Abdomen. R. Hutchison.—p. 667.
Man's Posture: Its Evolution and Disorders. A. Keith.—p. 669.
Case of Hyperpiesia D. C. L. Vey.—p. 672
*Cutaneous Tuberculin Test (Pirquet): With Reference to Its Failure in Advanced Tuberculous Disease in Childhood. C. McNeil.—p. 673.
*Therapeutic Use of Tuberculin W. C. Wilkinson.—p. 674.
Treatment of Pneumonia. A. G. Newell.—p. 676.
*Pernicious Anemia with Foci of Infection in Alimentary Tract. V. Coates.—p. 677.
Constricting Action of Histamin on Veins: Method of Differential Perfusion: Nitrites in Prevention of Histamin Shock. O. Inchley.—p. 679.
Simple Diet Table. H. S. Pemberton.—p. 679.

*Adenocarcinoma of Appendix. A. O'D. Thomas.—p. 680.
Ebonite Poisoning. M. W. Geffen.—p. 680.
Rupture of Spleen. L. R. Lempriere.—p. 681.

Improvement in Cutaneous Tuberculin Test.—McNeil describes a technic for the performance and reading of the Pirquet test with which, he says, he has not failed to obtain a positive reaction in any case of severe tuberculous disease proved to be such by the discovery of the bacillus or by postmortem examination. He uses undiluted old tuberculin (O. T. Koch). A small circular area of skin on the front of the forearm is chafed with the sharp point of a darning needle until the epidermis is removed and the pink cutis vera is exposed. Care is taken to avoid bleeding. The eye of the needle is charged with undiluted old tuberculin, and pressed into the prepared vascular surface with a rotary motion. A small bruised pit is thus formed from which the tuberculin is rapidly absorbed. This procedure is similar to that advised by Pirquet; but it differs in the careful preliminary excoriation of the skin, and thus renders more certain the contact of tuberculin with the skin capillaries. This difference is enough to secure success in cases in which the tuberculin reaction is feeble. In seven cases in which both methods were tried side by side the reaction was positive in five with the method just recommended, and in only two cases with Pirquet's method.

Therapeutic Use of Tuberculin.—Wilkinson states that his records give him unswerving faith in large doses of tuberculin, given subcutaneously, as the best remedy for tuberculosis in all its forms.

Intestinal Lesions Precede Pernicious Anemia.—Coates cites three cases in which he believes that previous intestinal lesions were related etiologically to the later developing pernicious anemia. These lesions were: colitis, sprue and ulcers.

Adenocarcinoma of Appendix.—Thomas' patient was only 14 years of age. The first symptom manifested was abdominal pain, coming on suddenly. It was at first referred to the umbilicus, and later to the right iliac region, and was unaccompanied by vomiting or constipation. Over McBurney's point a cordlike thickening about 2 inches long was palpable. A diagnosis of tuberculous appendix was made. At operation the appendix was found to be 5 inches long, kinked, lying in the "4 o'clock" position, and bound down by adhesions. It showed signs of recent inflammation. On being removed and slit up along the lumen, which was patent, it was found to contain two small fecal concretions at the tip, and in the wall at the point where the kinking occurred were two small yellow masses, very hard, and cutting like an unripe pear. These masses proved to be adenocarcinoma.

Journal of Biochemistry, Tokyo

2: 1-180 (Oct.) 1922

Studies of Autolysis. S. Shima.—p. 1.
Chemical Studies of Corn Pollen. I. Isolation of Phytosterol and Inosite. S. Miyake.—p. 27.
Studies in Gastric Juice. IV. Pyloric Juice. M. Takata.—p. 33.
Investigations of Electromotivity of Frog's Skin. III. Researches on Effect of Narcotics on Behavior of Frog's Skin Under Electromotor Stimulation. K. Hashida.—p. 43.
Labor and Nutrition. IV. General Metabolism of Several Japanese Workwomen. J. Sakamoto.—p. 73.
Protein Combinations with Acids and Alkalies. M. Takeda.—p. 103.
Inhibitory Action of Salts of Silver and Some Other Heavy Metals on Amylase. G. Mori.—p. 117.
Glycolytic Properties of Blood. Y. Kawashima.—p. 131.
Studies on Hemoglobin. I. Advantage of Alkaline Solutions for Colorimetric Determination of Hemoglobin. H. Wu.—p. 173.

2: 181-365 (Jan.) 1923

Studies on Hemoglobin: II. Peroxidase Content of Blood. Hsien Wu.—p. 181.
Id. III. An Ultramicromethod for Determination of Hemoglobin as a Peroxidase. Hsien Wu.—p. 189.
Id. IV. Catalase Activity of Hemoglobin and Derivatives. Hsien Wu.—p. 195.
Studies on Pepsic Digestion. S. Shima.—p. 207.
Effect of Various Salts on Trypsic and Erepsic Activity. K. Nagai.—p. 229.
Difference Between Adsorptive Powers of Charcoal from Common and Glutinous Starch. T. Tadokoro and Y. Nakamura.—p. 239.
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Lethal Temperature of Koji-Diastase in Aquatic Solution and Recovery of Action After Heating. K. Miyake and M. Ito.—p. 255.
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Serologic Investigations of Hemoglobin, Especially the Practicability of "Hemoglobino Precipitin." S. Higashi.—p. 315.
Influence of Albumin-Fat Diet on Carbohydrate Metabolism. N. Kageura.—p. 341.
Examination of Urine of Pregnant Women. M. Honda.—p. 351.
Antagonistic Action Between Salts on Surface Tension of Organic Colloidal Solution. T. Tadokoro.—p. 361.

Lancet, London

1: 833-882 (April 28) 1923

Cultivation of Tissues and Tumors in Vitro. A. H. Drew.—p. 833.
*Hemorrhages of New-Born. J. N. Cruickshank.—p. 836.
*Tuberculosis of Sacro-Iliac Joint. H. C. W. Nuttall.—p. 839.
Open Ether for Occasional Anesthetist. A. Waters.—p. 843.
*Case of Persistent Jaundice in Infant. B. Myers.—p. 844.

Hemorrhages of New-Born.—In a series of 200 mature infants reported on by Cruickshank, hemorrhage of greater or less degree was present in 154 cases—a percentage incidence of 77. If allowance be made for certain craniotomy cases, the incidence rate of hemorrhage in this group of infants becomes approximately 80 per cent. In fifty-five instances, however, the hemorrhage consisted of capillary oozings or petechiae only, and if these be neglected, there was gross hemorrhage in ninety-nine cases—approximately 50 per cent. of the series. There were sixty-five cases which showed meningeal hemorrhage of a gross character. In forty-four of these cases meningeal hemorrhage was the only gross hemorrhage present—though capillary oozings or petechiae were noted in most instances—while in the remaining twenty-one cases the meningeal hemorrhage was associated with gross hemorrhage into the viscera. In thirty-four cases, approximately one sixth of the whole series, there was hemorrhage into the viscera without meningeal hemorrhage. This group contained eight cases of craniotomy, however, so that it would be more correctly estimated at twenty-six, an eighth of the series. Two hundred premature infants which were born during the eighth or ninth lunar months of pregnancy were examined, and it was found that in 133 cases hemorrhage was present, an incidence of 66.5 per cent. In fifty-two cases bleeding did not amount to more than capillary oozings or petechiae, so that there was gross hemorrhage in eighty-one cases, approximately 40 per cent. of the whole series. Meningeal hemorrhage, apart from other gross bleeding, was found in thirty cases, and in twenty-five cases there was meningeal hemorrhage associated with hemorrhage into the viscera. In another twenty-six cases, there was gross visceral hemorrhage without meningeal hemorrhage.

Tuberculosis of Sacro-Iliac Joint.—Nuttall does not approve of the old operations of trephining and scraping in this condition, asserting that they are not based on a sound conception of the anatomy and pathology of the joint, and the results are poor. Much better results are to be expected from more radical treatment. Nuttall commends Picque's method, which is based on the following principles: (1) an approach to the joint by cutting away the posterior overlapping portion of the ilium; (2) the resection of more or less of the sacrum, as may be necessary, for the complete evacuation of any intrapelvic abscess; (3) the methodical following up of the disease by means of the gouge or curet, so that a smooth granulating surface may be formed without pockets or sinuses.

Persistent Jaundice in Infant.—A case of persistent jaundice in an infant, aged 7 weeks, with atresia of the common bile duct and biliary cirrhosis of the liver, is cited by Myers. The jaundice had commenced two days after birth, becoming more intense during the second week, and persisted. The motions were whitish. The urine was very distinctly bile colored. The child had been taking its food (breast milk and prepared food) well. The child died, aged 14 weeks.

Bulletin de l'Académie de Médecine, Paris

87: 358-369 (March 20) 1923

Pyelotomy for Calculus in Kidney. P. Bazy.—p. 359.
The Bordet-Wassermann Test in Parturients. A. Brindeau.—p. 362.
*Determination of Sex. Alich.—p. 363.

Determination of Sex.—Reviewed editorially, May 12, page 1382.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 239-282 (Feb. 16) 1923

Subglottic Injection into Bronchi. Caussade et al.—p. 239.
Hemotherapy in Whooping Cough. H. Méry and L. Girard.—p. 243.
*Ophthalmoplegia in Pneumonia. J. Thiroloix and M. Harmelin.—p. 244.
Comparative Tests in Syphilis. Lortat-Jacob and P. Legrain.—p. 248.
*Radioscopy of Frank Pneumonia. Paisseau and Iser-Solomon.—p. 252.
*Peptone Shock Treatment in Purpura. Paisseau and Alcheck.—p. 258.
Sero-Fibrinous Pericarditis. J. Troisier et al.—p. 263.
*Tyrosin Reaction in Sputum. N. Fiessinger and G. Blum.—p. 274.
*Gastric Cancer with Erosion. Ramond and Hirschberg.—p. 278.
*Lockjaw Arrested by Blocking Nerve. Vincent and Bernard.—p. 281.

Ophthalmoplegia in Pneumonia.—Thiroloix and Harmelin recall that ocular affections are rare in pneumonia and in the course of all pneumococcus infections. They report a case of bilateral ophthalmoplegia in a young woman in the course of atypical pneumonia, with complete recovery.

Radioscopy of Frank Pneumonia.—Paisseau and Iser-Solomon confirm the adverse prognosis of Weill and Mouriquand in cases of early hepatization which shows a shadow in the radiogram immediately. They believe there may be perfect synchronism between the appearance of the general signs of pneumonia and hepatization, without leaving time for a phase of previous septicemia. The absence of the shadow in the radiogram in the early stage of pneumonia does not prove the absence of local congestion in the lungs at that time.

Peptone Shock Treatment in Hemorrhagic Purpura.—Paisseau and Alcheck used with success the peptone shock treatment in a case of purpura, with serious intestinal hemorrhage, after injections of horse serum had failed. Fourteen days of hemorrhages had produced anemia so pronounced that an early fatal termination seemed inevitable. The first intravenous injection of 2.5 c.c. of a 10 per cent. peptone solution, given slowly, at the end of an hour produced a sudden severe chill. At the appearance of this chill a subcutaneous injection of 1 mg. of epinephrin was given and this, within five minutes, relieved the shock without producing a thermic reaction. The peptone injection seems to provoke a more violent shock than that from colloidal metals, but less serious than those that may be produced by serum in anaphylactic subjects. They endorse Renaud's suggestion to add 0.25 mg. of epinephrin to the peptone solution or give 1 mg. subcutaneously. The epinephrin must be given at the onset of the chill in order to arrest the secondary shock unless anaphylaxis is feared.

Tyrosin Reaction in the Sputum, and the Leukocyte Proteases.—Fiessinger and Blum found positive reactions to tests for tyrosin in the sputum in pulmonary tuberculosis with tubercle bacilli in the sputum, but they also obtained positive reactions in cases where there were no certain tuberculous lesions and no tubercle bacilli in the sputum. For obtaining a proteolysis carried up to the point of amino-acids, it is sufficient to incubate the normal polymorphonuclears of the blood in a casein solution. The tyrosin reaction will be considerably intensified if an emulsion of purulent sputum is incubated on chloroform for twenty-four hours. Any mechanical condition promoting stagnation of sputum enhances proteolysis, but mucin checks it.

Gastric Cancer with Erosion.—Ramond and Hirschberg say that symptoms of what they call "erosive cancer" resemble those of ulcers, and it is inaccurately diagnosed in four cases out of five. In the last two years, they have treated five cases, all males between the ages of 36-56 years, in three of whom the cancer started suddenly, while in two it developed from chronic dyspepsia. The patients had cramps, with burning and tearing sensations, in from one to three hours after meals, which disappeared if an alkali or food was ingested. There was no hematemesis or melena, but in three of the cases there was a marked tendency to anemia. On radiograms the stomach appeared dilated, with pyloric spasm. Gastrectomy was performed on all five cases, four surviving.

Alcohol Treatment of Trismus from Charcot's Disease.—Vincent and Bernard treated a case of incipient Charcot's disease with severe trismus by injecting alcohol into the two inferior maxillary nerves. The patient opened her mouth immediately after the injection; she could take food, masticate and perform all normal acts. They had diagnosed the case as trismus, accompanied by clonus, from the symptoms of paralysis of the lips, tongue and palate.

47: 283-322 (Feb. 23) 1923

Tumor of Nervous Origin in Gastric Wall. De Massary and Walser.—p. 284.
Meningeal Syphilis Treated by Bismuth. Vialard.—p. 288.
Gastric Cancer of Intestinal Structure. F. Ramond et al.—p. 294.
*Intratracheal Injection of Iodized Oil. Forestier and Leroux.—p. 299.
*Tuberculous Meningitis Cured. A. Pissavy and Terris.—p. 304.
*Hemorrhages in Lethargic Encephalitis. J. Tinel and R. Dupouy.—p. 306.
*Iodized Oil in Treatment. Sicard and Forestier.—p. 309.
Elimination of Iodin in Urine. Sicard et al.—p. 315.
Arsenic-Acetyl Acid Preparation in Syphilis. Sézary and Pomaret.—p. 318.

Radiographic Study of Intratracheal Injections of Iodized Oil.—Forestier and Leroux think that the principal merit of intratracheal injection is that the fluid used, whether iodin, antiserum or vaccine, acts directly on the lesions. These should be located previously, clinically and radioscopically. Their injections have been both preceded and followed by radiography. Gravity influences the distribution of the fluid in the bronchi. They have found it impossible to place the fluid anywhere, except in the base, even with injection of from 15 to 20 c.c., when the patient was in a sitting position. Only when the patient is reclining is it possible for the iodized oil to reach other zones than the base of the lung. He is instructed to breathe calmly and the larynx must be anesthetized, as reflex coughing must be absolutely avoided.

Tuberculous Meningitis Apparently Cured for Five Months to Date.—Pissavy and Terris describe a case of tuberculous meningitis in a man, aged 24, under treatment for tuberculosis in one lung. Spinal puncture yielded a clear fluid, under high pressure, rich in lymphocytes, and with excess of albumin. It contained acid-resisting bacilli, seemingly identical with tubercle bacilli. The meningitic symptoms began to subside on the tenth day and by the fifteenth clinical recovery was practically complete. They call attention to the low degree and rapid disappearance of the excess of albumin, and also to the feeble virulence of the cerebrospinal fluid. Though the bacilli were plainly visible on the slides, intraperitoneal injection of 1 c.c. in guinea-pigs did not cause tuberculous lesions. A similar harmlessness of the cerebrospinal fluid was also found in a curious case reported by Rist and Boudet in 1908, which also referred to curable meningitis and acid-fast bacilli. They were morphologically identical with tubercle bacilli. But the bacilli, which were present in large numbers at certain times, disappeared at others, and alternated with lymphocytosis, which also was intermittent.

Hemorrhagic Syndrome in Epidemic Encephalitis.—Tinel and Dupouy report two cases of lethargic encephalitis that ran a rapidly fatal course within two days, with the clinical picture of intense infectious delirium and a terminal syndrome of profuse gastro-intestinal and other hemorrhages, in two men, aged about 35. The indication of the encephalitic origin was furnished only by the existence of diaphragmatic and abdominal myoclonus and, in one of the cases, intermittent cervicobrachial neuralgia.

Iodized Oil in Diagnosis and Therapeutics.—Sicard and Forestier are the first to succeed in radiographing a sufficiently tolerated substance in the subarachnoid sac as well as in the epidural cavity. They found the most accessible regions for radioscopic exploration to be between the first and fifth dorsal vertebrae and between the tenth dorsal and fifth sacral; 4 or 5 c.c. of the iodized oil, at room temperature, may be injected without pain. If the patient is erect, or semi-seated, the oil, obedient to the law of gravity, will have reached the lowest level in eighteen or twenty hours. In a normal patient, radiography will show the course of the iodin as a continuous dark stream. In about twenty hours it has

become attached to the epidural tissues. If the spinal cord is compressed or the epidural passage is blocked, the lower boundary of the iodized oil is more or less transverse, with accumulation of dark particles. The barrier of compression may be overcome by making an injection above and below, with a two day interval. Exploration of the subarachnoid cavity by injection of 1 c.c. into the cerebrospinal fluid can be made through a puncture at the fourth or fifth dorsal vertebra, after a little of the cerebrospinal fluid has been drained off. The iodin shadow will be about the same whether the patient is sitting or lying on his back, but different if he is lying on his side, the fluid passing along the posterior subarachnoid region. By this method they have located tumors in three cases. The injection of iodized oil not only helps in locating tumors by radiography, but it also has a healing effect on cold abscesses.

Paris Médical

13: 129-144 (Feb. 10) 1923

*Prognosis of Traumatic Shock. G. Jeanneney.—p. 129.
*Seroreaction in Syphilis. Rubinstein.—p. 134.
Osteoarticular Tuberculosis as Dry Caries. P. Wilmoth.—p. 135.
The Luteum Apparatus of the Ovary. D. Schil.—p. 138.

Prognosis of Traumatic Shock.—Jeanneney's paper deals especially with the prognostic significance of changes in the systolic and diastolic blood pressure.

Seroreactions in Syphilis.—Rubinstein reviews his twelve years of experience with the seroreactions in syphilis. He found that the flocculation (Sachs-Georgi) is neither sensitive, nor specific. The Wassermann, Hecht and Jacobsthal methods performed simultaneously give the most reliable results.

13: 145-176 (Feb. 17) 1923

*Local Causes of Cancer. P. Menetrier.—p. 145.
Slye's and Murphy's Research on Experimental Cancer. Dubois-Roquebert.—p. 152.
Neoplasms in Plants. G. Mangenot.—p. 159.
*The Body Fluids with Cancer. Loeper, Forestier and Tonnet.—p. 166.

Local Causes of Cancer.—Menetrier remarks that repeated irritation as a cause of cancer was proclaimed by Broussais long before Virchow. The cancers that follow a single severe trauma are of the sarcoma type. Instances have been published involving bones, the eye, the breast and elsewhere. Clunet witnessed the development of a sarcoma in two rats exposed to intense roentgen irradiation. With epitheliomas, there is generally a long intermediate period of chronic inflammation. Precancerous skin affections are all of the keratosis type. The influence of local irritation is particularly manifest in cancer of the biliary and urinary apparatus. A history of colic is common. Papillomatous or adenomatous hyperplasia forms the bridge between the chronic irritation and the cancer, or a metaplasia as in the epithelium lining the air passages, which assumes the pavement type. He remarks that the experience of ages is crystallized in the lay term for nevi, *noli me tangere*, citing a recent case in which a sarcoma developed in a small angioma on the tongue, exposed to excoriation. The resistance of guinea-pigs to tar cancer shows that the soil is one of the determining factors.

Modifications in Body Fluids in Malignant Disease.—The urine may reflect denutrition and cachexia but, Loeper says, study of the blood is more instructive as this reveals organic vitiation. He discusses the sugar, salts, globulin and albumin, and the hemolytic action of cancer blood. The hemolytic action may affect the subject's own erythrocytes or those of others or of animals, but cancer serum, according to Freund and Kaminer, lacks the destructive action on cancer cells which is displayed by normal serum. In the general toxic action liable to follow intense roentgen irradiation, the sugar of the blood may increase to 0.2 per cent. or more. The value of the "micro-Abderhalden" reaction is still uncertain, as also of precipitin and intradermal reactions to cancer cell extracts. The above tests are instructive only in advanced stages of cancer, but the outlook is promising with further study of the electric resistance and polarization of cancer, the catalytic power, the variations in the colloidal state, the ion concentration in the serum, and other phases of physical chemistry. The hope of diagnosing incipient cancer by any of these means is still far from realization.

13: 177-192 (Feb. 24) 1923

*Treatment of Epidemic Encephalitis. Carnot and Blamoutier.—p. 177.
*Splenomegaly in Heart Disease. M. Creyx and F. Piéchaud.—p. 179.
*Acute Peritonitis Traced to Adnexa. Bloch and Soupault.—p. 183.
Pseudomeningococcus Meningitis in a Syphilitic. Audouard.—p. 185.
Formaldehyd Preparation in Tuberculosis. Hamant and Méry.—p. 188.

Sodium Salicylate in Treatment of Epidemic Encephalitis.—Carnot and Blamoutier gave 4.5 gm. of sodium salicylate daily, by the vein, to a total of 22 gm. in a grave case of encephalitis of choreic type in a young woman. The benefit was prompt and pronounced, as also in a second case, of lethargic type, in a boy of 16. He was given a total of 50 gm. in eight days. In a 4 per cent. solution, the intravenous injection has no local irritating action, they say, and is not painful. In their first case they used such a concentrated solution that the vein became obliterated, and they did not dare to resume this treatment during a relapse eight days later, which proved fatal.

The Enlarged Spleen in Heart Disease.—The spleen enlarges when any of its functions becomes exaggerated. Congestion alone is not enough to induce splenomegaly; it requires some factor inducing hemolysis, and this can be realized by almost any infection or intoxication. The liver is always gravely affected in severe asystolia, and this entails anemia from the toxic action of bile salts.

Acute Peritonitis of Genital Origin.—This clinical picture is rare, but Bloch and Soupault report three cases, with recovery after removal of the primary focus in the adnexa. They ascribe the infection to the abdominal opening of the tube.

Presse Médicale, Paris

31: 77-88 (Jan. 27) 1923

Mechanism of Digestive Leukocytosis. Pagniez and Plichet.—p. 77.
*Vessel-Blood Shock from Ligation of Limb. J. Le Calvé.—p. 78.
New Trypanosomicidal Drugs. L. Cheinisse.—p. 81.

Vessel-Blood Shock from Ligation of Limb.—Le Calvé has been studying the phase of colloidoclasis which follows tying a cord around the upper third of the thigh or arm for ten minutes. The blood shows at once modifications suggesting an upset in the colloidal balance, even in the healthy. In persons with an unstable autonomic nervous system, the reaction is quite pronounced. The *crise vasculo-sanguine* induced in this group seems to be identical with the hemoclastic crisis which precedes the manifestations of colloidal shock, and he has been experimenting with ligation as a means to ward off shock of this kind and to desensitize in cases of angioneurosis, alimentary anaphylaxis and other manifestations of the colloidal shock. He tabulates the findings in twelve cases, and compares them with Sicard's method of injecting a very small dose of arsphenamin below a tourniquet, when he has reason to expect by-effects. He then waits four or five minutes, and then injects the rest of the drug, after slowly releasing the constricting band. Le Calvé thinks that the benefit from this topophylaxis is probably due to the vessel-blood shock which it induces.

31: 165-172 (Feb. 21) 1923

Screw Treatment of Dupuytren's Fracture. Leclerc.—p. 165.
*Urticaria and Hemiplegia. Lermoyez and Alajouanine.—p. 167.

Urticaria and Hemiplegia.—In the case reported, the woman aged 62, suddenly developed right hemiplegia with pronounced sensory disturbances on that side. The third month, urticaria developed after eating fish, but it was strictly limited to the paralyzed side. Pinching the skin at the back of the neck induced the pilomotor reflex only on the sound side, while sweating was profuse only on the paralyzed side, and the systolic blood pressure was lower on this side. Test injection of horse serum induced the appearance of the urticaria on several occasions, but it was always restricted to the paralyzed side. The shock produced by the parenteral protein thus manifested itself exclusively in the region in which other tests had demonstrated exceptionally intense disturbance in the vegetative nervous system.

31: 309-340 (April 4-11) 1923

*Sequelae of Phlebitis. R. Leriche.—p. 309.
*Diagnosis of Inherited Syphilis. E. Leredde.—p. 310.
*Valve Tracheotomy. G. Zorraquin.—p. 313.
*Atypical Forms of Acute Gout. F. Bezançon et al.—p. 317.

Peripheral Venous Tension. Villaret et al.—p. 318.
*The Vagus-Sympathetic Balance. Garrelon et al.—p. 323.
*Ponndorf's Scarification Tuberculin Treatment. L. Cheinisse.—p. 325.
Curable Uremias. M. Chevassu.—p. 329.
Pigmentary Cirrhosis. F. Gallart Monés.—p. 334.
*Hemotherapy of Scarlet Fever. A. Daniel.—p. 336.
Suprapubic Retromuscular Abscess. Morlet and Rajat.—p. 337.

Treatment of Tardy Results of Phlebitis.—Leriche recently operated fifteen years after phlebitis in the femoral vein. There had been no disturbances for fifteen years, and then atypical intermittent claudication developed, with intense pains, relieved only by repose. This syndrome has been apparently permanently cured by resection of a segment of the vein and periarterial sympathectomy.

Diagnosis of Inherited Syphilis.—Leredde remarks that it would be a boon if we could be told exactly what are the affections in which it is useless to look for syphilis. To date he does not know of any such, and he declares that search for syphilis is imperative in every child that is not in normal health, since its life and, if it survives, its health throughout life may depend on an etiologic diagnosis, made in time. Aside from the superficial lesions and a few stigmas, there are no specific signs of the disease except those furnished by the laboratory and investigation of the family. But whatever the chronic disease in a syphilitic, it is liable to improve under specific treatment. When the number of red corpuscles and the hemoglobin increase under specific treatment, while the mononucleosis grows less, the presumption of syphilis is confirmed. This is even more certain when lymphocytosis in the cerebrospinal fluid declines. Tentative treatment, however, must be pushed as vigorously and perseveringly, he says, as in known syphilis: mercury every day and an arsenical every week; treatment may have to be continued for months before absolute certainty.

Acute Laryngeal Asphyxia.—Zorraquin explains that the tracheal cannula he has devised allows free inspiration, but a valve prevents expiration, and the air has to be expelled through the natural route. The advantages of maintaining the permeability of the larynx are obvious: it does away with the dangerous complications of tracheotomy and retention of secretions in the lower air passages. The valve cannula is illustrated.

Atypical Forms of Acute Gout.—Bezançon, Weil and de Gennes describe a pseudophlegmonous form of acute gout. In the dorsum of the foot it gave the impression of fluctuation, and the inguinal glands were swollen and painful, but there was a history of recurring gout in the big toe, and under colchicum the "phlegmon" vanished in three days. Another form simulates extensive phlebitis. Hydrarthrosis is an episode of acute gout liable to be misinterpreted, as also acute arthritis of the large joints simulating febrile rheumatism or white swelling. A history of an attack of gout in the big toe is often the only thing to give the clue to the prompt and effectual cure under colchicum.

The Vagus-Sympathetic Balance.—Garrelon, Santenoise and Tinel comment on the new horizons opening as we study the involuntary nervous system more closely. An upset in the balance between the vagus and sympathetic seems to be the indispensable condition for all reactions of the anaphylaxis type and intoxications. They have worked out several biologic laws governing the type of these reactions.

Ponndorf's Tuberculin Treatment.—Ponndorf introduces the tuberculin through the skin in deep long scarifications that draw blood, as he ascribes an important rôle to the skin in the method. The general verdict to date is far from favorable.

Hemotherapy in Scarlet Fever.—Daniel injects convalescents' whole blood in treatment, and reports favorable results in thirty-three cases, all but six exceptionally grave. There were five deaths.

Schweizerische medizinische Wochenschrift, Basel

53: 185-208 (Feb. 22) 1923.

Importance of Study of the History of Biology. J. Strohl.—p. 185.
*Heredity of Ocular Anomalies. A. Vogt.—p. 188. Conc'n.
*Acute Perforation of Stomach. A. Suter.—p. 193.
*Intracardiac Injection of Epinephrin. E. Baumann.—p. 198.

Heredity of Certain Ocular Anomalies.—Vogt's charts show that a consanguineous marriage in a stock with a hereditary taint, such as color blindness, does not increase the number of those affected with the anomaly except in the single family involved. Inbreeding does not produce new gens; it only affords greater opportunities for two gens of the same kind to come together. Conditions are more complex with hereditary myopia, as the length of the axis and the curvature of the cornea and possibly other factors are involved. Concomitant strabismus is another eye affection of pronounced hereditary type with numerous factors involved, some perhaps mendelian, some coupled. This article supplements one which was summarized in these columns, March 18, 1922, p. 850, the whole forming a comprehensive monograph on hereditary anomalies and sex-linked affections and the light they have thrown on biology in general, especially sex determination.

Acute Perforation of Stomach.—Suter gives a table of thirty recorded cases of acute perforation with prompt radical operation. The mortality in fifty cases he has compiled was only 16.3 per cent. He reports further a case in which he resected the stomach for supposed perforation of a simple ulcer, and removed the gallbladder on account of gallstones. The course of the case revealed the malignant nature of the lesion, the tumor recurring by the end of a year. Baumann has reported the case of a woman, aged 65, who had had gallstone colic repeatedly for ten years and finally acute perforation of the stomach, which he resected. He found it the seat of a small cancer. The gallbladder was removed at the same time, and the woman has been in good health since. The colic had probably induced the perforation. Suter discusses the reciprocal action of gallstones and stomach affections.

Intracardiac Injection of Epinephrin.—Baumann resuscitated two children recently with intracardiac injection of epinephrin. One was an infant, aged 6 months, whose heart stopped beating as chloroform was being given for herniotomy. After an interval of four minutes, 0.75 c.c. of a 1:1,000 solution of epinephrin was injected directly into the heart through the fourth intercostal space, 3 cm. from the left margin of the sternum. In seven seconds the heart contracted and again two seconds later, and the skin of the whole body turned as red as in scarlet fever. The child began to breathe about the twelfth second. The other child had suffocated in a whooping cough spasm, and was rushed to the hospital in four minutes. Four minutes after respiration had ceased and three and a quarter after the heart had stopped beating, 1 c.c. of the epinephrin solution was injected into the heart muscle. It began to contract the twenty-third second and inspiration followed the twenty-sixth. The injection was made intramuscularly in the left ventricle. This Baumann regards as the preferable technic, as he worked it out on cadavers immediately after death, trying needles of different lengths at various points. Those close to the sternum, in the fourth and fifth interspaces were all in the right ventricle. He gives the exact details in eight cadavers of different ages, all the data testifying to the advantages of making the puncture in the fourth intercostal space, at the upper rim of the fifth rib, about 5.5 cm. from the left margin of the sternum in adults. The depth is determined by the sensation as the needle enters the muscle; it is then pushed in for a few millimeters more. He advises not to inject more than 0.5 c.c. in young infants, and up to 1.5 c.c. in adults. The dose of 0.75 c.c. given the infant caused a severe general reaction, vomiting, epileptiform spasms and fever. The temperature was not normal till the seventh day.

Pediatria, Naples

31: 169-224 (Feb. 15) 1923

*Hereditary Syphilis. I. Nasso.—p. 169.
Defect in Femur: Missing Head and Neck. Scaduto.—p. 194.
Arterial Pressure in the New-Born. S. Fabris.—p. 198.
Ether in Pneumonia and Bronchitis in Children. F. L. Presti-Seminerio.—p. 206.

Hereditary Syphilis in Italy.—Nasso, basing his observations on statistics at Naples, 1914-1921, says that hereditary syphilis in children predisposes them to tuberculosis. While scarcely 14.6 per cent. of all the 26,584 children examined

were tuberculous, 24.5 per cent. of the syphilitic children were infected with tuberculosis. About 52 per cent. of the congenital malformations were in children with inherited tuberculosis, and 50 per cent. of the endocrine lesions were coexistent with this disease. It was found in 76.8 per cent. of the cases of spastic hemiplegia, and in about 80 per cent. of the bilateral cases. Of 160 cases of splenic anemia, 135 were syphilitic. In the certainly syphilitic newborn, the Wassermann reaction is not always positive. The newly born may not present syphilitic symptoms or react positively to the Wassermann test, but after a period of latency they may show such symptoms and reactions. Children of syphilitic mothers should be treated early and intensively whether they show clinical symptoms or not.

Policlinico, Rome

30: 101-164 (March 1) 1923. Medical Section

Mastix Reaction in Cerebrospinal Fluid. D. Pisani.—p. 101.
Benzoin Reaction in Cerebrospinal Fluid. A. Ferraro.—p. 127.
A Flocculation Reaction in Syphilis. A. Dalla Volta and P. Benedetti. —p. 135.
Treatment of General Paresis and Other Spirochetoses by Induced Fever and Infections. G. Santangelo.—p. 143.

Riforma Medica, Naples

39: 193-216 (Feb. 26) 1923

Treatment of Tabes. G. Arata.—p. 193.
Injury of Bundle of His in Malaria. C. Cantieri.—p. 196.
Rare Complications and Sequelae of Influenza. G. Belloni.—p. 198.
Gangrene After Piercing Ears of Young Infant. Gioseffi.—p. 201.
*Calcium Chlorid in Treatment of Eczema. G. Lampronti.—p. 202.
Combined Serotherapy, Silver Salt and Hexamethylenamin in Treatment of Typhoid. G. Pansini.—p. 202.

Calcium Chlorid in Treatment of Eczema.—Lampronti has been giving calcium chlorid a thorough trial in the treatment of eczema, according to Netter's suggestion, and has been impressed with its value. He found it extremely effectual, often after failure of all other measures, and even in the anemic and scrofulous. He applied it in a 6 per cent. ointment, and frequently many of the crusts dropped off in twenty-four or forty-eight hours after the first application, leaving a dry surface; the epidermis rapidly resumed its normal aspect. Wright has recommended calcium chlorid also in treatment of urticaria and pruritus.

Brazil-Medico, Rio de Janeiro

1: 141-158 (March 17) 1923

Hemangioma on Vocal Cord. Oswino Penna.—p. 141.
Spontaneous Luxation of Lens. Two Operative Cases. Abreu Fialho. —p. 143.
*Dermatomycoses in Bello Horizonte. Aroeira Neves.—p. 144.

Dermatomycoses in Brazil.—Aroeira Neves states that the microsporon of the cat is responsible for numerous cases of dermatomycosis at Bello Horizonte. It occurs in small familial epidemics, and he describes ten typical cases. The parasite, *Microsporon felineum*, was found in more than 81 per cent. of the cases; the scalp was involved in less than 28 per cent. Children are affected more often than adults. There were from six to eleven lesions scattered over the face and body, and the family cat and dog as a rule presented similar lesions with the children. There was more or less itching.

1: 159-172 (March 24). 1923

Staphylococcus Ciliary Folliculitis. Abreu Fialho.—p. 159.
*Dose of Antivenom Serums. R. Kraus and Rocha Botelho.—p. 160.
*Pulsating Exophthalmos from Aneurysm. J. Santa Cecilia.—p. 161.
French Otorhinolaryngology in 1922. Ramadier.—p. 163.

Standardization of Snake Venom Antiserums.—In this fifth communication on this subject, Kraus and Rocha Botelho state their conclusion that the best method for determining the proper dose is with Vital Brazil's technic, incubating for an hour. This is an index of the maximal neutralizing potency in vitro. On the other hand, Calmette's method, injecting the venom and the antiserum separately, by the vein, is the best index of the maximal avidity of the antiserum, and of the greatest curative value. They urge international agreement to decide on some such standardizing procedure.

Pulsating Exophthalmos.—The aneurysm causing the exophthalmos involved the carotid and the cavernous sinus, and was safely operated on.

Prensa Médica Argentina, Buenos Aires

9: 797-824 (Feb. 28) 1923

*Stretching of Round Ligament of Liver. Delfor del Valle, Jr.—p. 797.
Pseudomyxoma of Appendiceal Origin. Mazzini.—p. 802. Conc'n p. 825.
*Contracture of Fingers from Syphilis. Zinny and Vivaldo.—p. 806.
Percussion of the Liver. A. Navarro.—p. 809.

Pyloric Syndrome from Traumatic Stretching of Round Ligament of the Liver.—The young athlete experienced a sudden pain in the epigastrium as he was casting a quoit, and the symptoms during the following year seemed to indicate a traumatic epigastric hernia. The pyloric syndrome at the slightest effort and the complete relief when reclining were explained by the exploratory operation which revealed that the round ligament of the liver had been stretched and torn. The pyloric symptoms were reproduced by pulling on this ligament, and a permanent cure was realized by resection of the ligament. A second case is cited, the patient a physician. In both cases, raising the right arm increased the pain and brought on vomiting unless the stomach was empty at the moment. A colored plate accompanies the article. The second patient was treated medically for dyspepsia without benefit, but the symptoms finally spontaneously subsided after many months.

Contracture of the Fingers from Inherited Syphilis.—The girl's hands presented the clinical aspect of chronic rheumatism, with retraction of tendons. But under treatment for syphilis begun four months after the first pains in the hands, the pains subsided and the tendons relaxed so that by exercising them the normal play of the fingers was restored. If treatment had been delayed, the girl's hands would soon have been permanently crippled.

9: 853-880 (March 20) 1923

*The Radiologic Triad of Inherited Syphilis. J. A. Saralegui.—p. 853.
Metastasis in Choroid of Pleural Cancer. E. Adrogué.—p. 862.
Technic and Interpretation of Biopsy. S. Mazza and M. Balado.—p. 865. Cont'n.
Interpretation of Reducing Power of Carbohydrates. M. P. Raurich.—p. 868. Conc'n.

The Radiologic Triad of Inherited Syphilis.—Saralegui reproduces three roentgenograms from each of nine persons with inherited syphilis, all showing the same three anomalies. He has found them so constantly in inherited syphilis that he calls the triad the "radiologic Wassermann." The abnormal outlines of the heart in connection with the aorta, of the stomach in connection with the duodenum and cecum, and of the periosteum of the long bones, form a triad which strongly suggests inherited syphilis. The organs may be apparently normal but not quite in their normal place, with or without adhesions, especially at the cecum. The anomalies in the periosteum are found in the radius, ulna, tibia and fibula in order of frequency. They are most pronounced at the middle third of the bone and nearest the head. The abnormal outline can sometimes be felt by palpation. There is probably excessive production of fibrous connective tissue at these points, and this is not influenced by specific treatment. The epiphyses are normal.

Revista de la Asoc. Médica Argentina, Buenos Aires

35: 869-1023 (Dec.) 1922

The Antimosquito Campaign at Famaillá. Bachmann.—p. 869.
Chronic Diarrhea from Blastocystis Hominis. S. Mazza.—p. 889.
Endemic Typhoid. Causes and Prophylaxis. Bachmann.—p. 896.
Arsphenamin by Mouth in Treatment of Intestinal Affections Caused by Flagellates. Mazza and Merlo.—p. 905.
*Inherited Syphilis in Argentina. A. Casaubon.—p. 915.
Electrodialysis for Study of Antitoxin. Wernicke.—p. 927.
Triplet Trophoblasts without Embryo Found in Cow's Uterus. Widakowich.—p. 936.
*Changes in Blood During Exercise. A. Bergman.—p. 939.
*Smallpox and Vaccinia. Bachmann and Biglieri.—p. 947.
Research with Curare on Frogs. G. Pacella.—p. 950.
*Hypertension from Splanchnic Nerve. Houssay and Marconi.—p. 953.
Antiserum for Gangrene. A. Sordelli.—p. 958.
*Action of Leukocytes on Koch Bacilli. Howard.—p. 961.
*Hemoclastic Crisis in Parturients. Mazza and Iraeta.—p. 963.
Cysto-Adenoma in Parotid Region. Mazza and Cassinelli.—p. 967.
*Splenectomy. M. Torres Boonen.—p. 973. Id. Gutiérrez.—p. 981.
Remote Results of Craniectomy. Allende.—p. 988. Idem. Jáuregui. —p. 993.

Inherited Syphilis in Argentina.—Casaubon relates that inherited syphilis was unmistakable in 6 per cent. of the 6,678

children with various diseases in the pediatric clinic at Buenos Aires since April, 1919. There was coincident active tuberculosis in 2.45 per cent.

Effects of Exercise on the Circulation.—Bergman recorded the blood pressure, the pulse and the leukocyte count before and after the exercise of raising each leg alternately to a height of 30 cm. from the level of the bed, the patient reclining half an hour beforehand, and repeating the movement about forty-five times a minute for four minutes and then for ten minutes. This test was applied to patients with various diseases but with a clinically sound cardiovascular system. A second group comprised patients with grave heart disease; the third group was the same as the second after a course of digitalis. The fourth group included tuberculous patients who had recovered from 70 to 100 per cent. of their former earning capacity under the influence of artificial pneumothorax. Among the data thus recorded he notes that the greater the insufficiency of the heart, the longer the interval before the hyperleukocytosis appeared, even when the blood pressure and the pulse seemed to indicate normal conditions.

Smallpox and Vaccinia.—Bachmann and Biglieri report experiences with rabbits which confirm that the protection conferred by vaccination with one strain of vaccine virus is not always complete against vaccine virus of another strain.

Share of Epinephrin in the Hypertension Induced by Irritation of the Splanchnic Nerve.—Houssay and Marconi relate that stimulation of the splanchnic nerve in dogs induces a discharge of epinephrin sufficient to raise the blood pressure and contract the vessels of a denervated leg. These effects are observed even when the circulation has been reduced to the head, thorax, suprarenals and one hind leg. They are not observed when the suprarenal vein is clamped, but appear anew when the clamp is removed. The same effects are noted if the animal is being continuously injected with epinephrin in physiologic doses.

Action on Tubercle Bacilli of Leukocytes from Immunized Horses.—Howard witnessed phagocytosis, lysis and the loss of the acid-resisting properties of the tubercle bacilli when the latter were brought into contact with leukocytes from horses immunized by supersaturation for production of tuberculosis antiserum. His research in this line was mentioned in these columns, Dec. 18, 1920, page 1751.

Widal's Hemoclastic Crisis in Parturients.—Mazza and Iraeta recorded the blood pressure in thirty-four parturients after ingestion of 200 c.c. of milk. In 38 per cent. the blood pressure dropped, but there was leukopenia only in 38.5 per cent. in this group. Only 14.7 per cent. of the total presented a typical hemoclastic crisis.

Splenectomy.—Torres Boonen drew more than 5 liters of fluid from the hydatid cyst in the spleen of a man, aged 40, and removed the spleen, restoring the patient to complete health at once. In a second case the spleen was removed under intraspinal anesthesia on the diagnosis of Banti's disease, with equally favorable results. The man, aged 32, had had symptoms for twelve years.

Semana Médica, Buenos Aires

1: 525-576 (March 22) 1923

*Suppuration in Urinary Tract in Infants. A. Casaubón.—p. 525.
Retrovesical Hydatid Cyst. J. Nin Posadas.—p. 530.
*Specific Viscosity of the Serum. Neuschloss.—p. 532.
De Martel Clamp in Resection of Stomach. P. Jáuregui.—p. 537.
Evolution and Degeneration. L. K. Wimmer.—p. 540.
Case of Obstructing Endarteritis. Balado and Selva.—p. 548.
Alleged Instances of Grafting of Eyes. A. d'Alessandro.—p. 553.
Roentgen Treatment in Leukemia. C. Heuser.—p. 554.
Replies to Questionnaire on Syphilis. T. Padilla.—p. 555.
Annual Report on the Institute for Minors. V. Delfino.—p. 559.
Organization to Combat the Spread of Leprosy.—p. 566.
Measures Advised for Protection of Radiologists.—p. 567.

Suppuration in Urinary Passages in Infants.—Casaubón urges routine examination of the urine whenever an infant presents signs of infection that is not definitely localized. The urine can be collected by wringing out a diaper if not possible otherwise; it is best to collect the urine of several hours. The mother tells that the child cries as it urinates, or that it passes very little urine, or there is a history of chills. There is often secondary gastro-intestinal disturbance. In two of the four cases described in detail, the pyelitis recurred later. In prophylaxis, the infant should be given water abundantly, with strict hygiene of the anus and genital organs. He advises hexamethylenamin and salol, with autogenous vaccines promptly if benefit is not soon apparent. He regards breast milk as imperative in these conditions, although this was not available in one of his cases in which the pyelitis had developed in the course of whooping cough. The infant was 6 months old, recovered, and passed safely through a mild recurrence later.

Specific Viscosity of the Blood Serum.—Neuschloss gives a table showing the viscosity that corresponds normally to a given quantity of protein in the blood serum. He worked out these standards on 100 healthy subjects. He gives two other tables showing how the viscosity is increased with hypothyroidism and reduced with hyperthyroidism.

Archiv für Gynäkologie, Berlin

118: 229-444 (April 16) 1923

*Splenectomy in Treatment of Menorrhagia. J. Halban.—p. 229.
*Cellular Immunity and Cancer. A. Theilhaber.—p. 237.
Epithelium in Cancer of Body of Uterus. R. Zimmermann.—p. 273.
Mechanics of Torsion of Internal Organs. H. Sellheim.—p. 296.
The Kielland Forceps Represents Progress. H. Heidler.—p. 334.
*Hyperplastic Ulcerating Vulvitis. C. Schoenhof.—p. 363.
Branching of Umbilical Cord on Placenta. B. Ottow.—p. 378.
*Pituitary Extract in Relation to Pregnancy. Anderes and Wächter.—p. 383.
*Microscopy of the Capillaries. Linzenmeier and Hagge.—p. 398.
Idem. A. Stern. p. 410.
*Sedimentation Test for Cancer. O. Gragert.—p. 421.
*Treatment of Beginning Cancer. F. Neuhaus.—p. 436.

Splenectomy in Thrombopenic Menorrhagia.—Halban's remarkable success in the case reported justifies high hopes from treatment of excessive uterine hemorrhage on the basis of the principles that have been found effectual in hemorrhagic jaundice. In hemorrhagic jaundice, removal of the spleen seems to stop the excessive destruction of thrombocytes and the resulting fragility of the smallest blood vessels. This tendency is rendered evident by the minute hemorrhages in the skin of the forearm when a tourniquet is applied to the arm above, and by the thrombopenia in the blood. The excessive and rebellious menstrual hemorrhages of adolescents have been ascribed to chlorosis hitherto, and given only palliative treatment; but Halban, as a last resort in the case described, removed the spleen. The thrombocytes numbered only 30,000 or less, the hemoglobin was very low and the girl, aged 17, was weak from the excessive menorrhagia and epistaxis for two years.

Roentgen exposures of the spleen had no effect, but in three days after the splenectomy the thrombocytes had increased to 133,000, and during the ensuing six months, menstruation has been normal and the girl in florid health. Roentgen exposure of the ovaries has too many drawbacks for young girls, and it acts only on the genital sphere, not warding off hemorrhages elsewhere. In Halban's case, nearly every other known measure had been applied during the two years.

Cellular Immunity in the Cure of Cancer.—Theilhaber cites new experiences that sustain the views he has been proclaiming since 1909 in regard to the cancer developing only in anemic tissue, and the infiltration with blood cells, especially lymphocytes, as necessary for the cure of cancer. For this reason he insists on measures to induce infiltration as an indispensable adjuvant to removal or radiotherapy of a cancer. Sun baths and air baths, diathermy and venesection increase the lymphocyte content of the tissues and thus induce immunity to cancer, helping to cure existing cancer and ward off recurrence. He suggests that arrangements should be made in sanatoriums for a few weeks' course every year of this infiltration treatment for patients supposedly cured of cancer. He has been applying these principles for thirteen years, and the cure has been complete to date in 32 of his 44 operative cases of cancer. The interval has been over eight years in 7 and over five in 11. This latter group includes 3 in which the parametrium was known to be involved in the cancer, but it was left in place.

Chronic Vulvitis.—The three cases reported by Schoenhof confirm the value of roentgen-ray treatment. It is almost

certain to cure when applied before the stage of fibrous degeneration has been reached. Even in this stage, after excision of the redundant tissue, the almost inevitable recurrences yield promptly to roentgen exposures.

Pituitary Extract in the Pregnant.—Anderes and Wächter conclude from their research on cats and rabbits, that the pituitary function is physiologically exaggerated in gravid animals. There is a marked difference between the gravid and nongravid animals in their reaction to the first injection of pituitary extract. The gravid respond to the first injection in the same way as the nongravid respond to the second injection.

The Capillary Circulation.—Linzenmeier and Hagge noted a remarkable parallelism between stasis in the capillaries and accelerated speed of sedimentation of the blood corpuscles. They think this explains conditions in eclampsia better than the assumption of spasm of the capillaries.

Sedimentation of Blood Corpuscles in Malignant Disease.—Gragert tabulates the findings in seventy cases of operable and inoperable cancer of the female genital organs. The speed of sedimentation was recorded 258 times, before and after treatment. Sedimentation was always accelerated with malignant disease, and normal conditions were not restored for more than a year after removal of the growth. The acceleration of sedimentation does not seem to be proportional to the size of the cancer, but reflects the toxic action on the system. In combination with other blood findings, it may turn the scale in the dubious diagnosis of cancer.

Treatment of Incipient Cancer of the Cervix.—In four of Neuhaus' six cases, intensive deep roentgen-ray treatment was given the beginning cancer. It seemed to speed up the malignant disease to a fulminating course. In another case the incipient carcinoma was charred with the actual cautery, and the clinical cure has been complete during the year since. In the sixth case the malignant disease was apparently arrested by infravaginal amputation of the cervix in 1919.

Deutsche medizinische Wochenschrift, Berlin

49: 241-268 (Feb. 23) 1923

Present Conception of Inflammation. W. Gross.—p. 241.
*Vagotonia in Functional Neuroses. Glaser and Buschmann.—p. 243.
*Treatment of Tabes and Contractures. H. Lippmann.—p. 245.
Sugar Content of Cerebrospinal Fluid. A. Wittgenstein.—p. 246.
Leukocyte Count in Prognosis of Pulmonary Tuberculosis. K. Rosenthal.—p. 249.
Experiences with the Colloidal Gold Test. F. Blank and W. Restemeier.—p. 250.
Experiences with Meinicke Test in Syphilis. K. Klein.—p. 252.
Improved Gastroscope. H. Elsner.—p. 253.
Pulmonary Disease from Practitioner's Standpoint. Goldscheider.—p. 255. Conc'n.
Examination of the Throat. G. Finder.—p. 257.

Vagotonic Leukopenia in Functional Neuroses.—Glaser and Buschmann do not agree with Widal's interpretation of the hemoclastic crisis as sign of derangement of the protein-binding function of the liver. The sudden drop in the number of leukocytes after drinking 200 gm. of milk when fasting was found constantly only in patients with vagotonic functional neuroses (and in urticaria) in their tests of 160 patients. The response varied from day to day in the same patient; no reliance can be placed on it unless the sudden alimentary leukopenia occurs on at least three different days. The reaction is merely a different distribution of the blood corpuscles. The differential count is not modified.

Intraspinal Treatment of Contracture in the Legs and the Lancinating Pains of Tabes.—Lippmann has applied to the diagnosis of spinal cord tumors the injection of sodium bromid as used in pyelography, and as used by Kramer in the treatment of delirium tremens. In his forty applications of the method, he found that the reaction was not proportional to the amount injected but was determined by the local condition. In one case of tabes, 20 c.c. of a 5 per cent. solution (maximum dose) was borne without the slightest reaction. In other conditions there were symptoms indicating acute chemical meningitis, but they had always subsided by the second day. After three injections of a 1 per cent. solution, at intervals of two and three weeks, one tabetic patient has had no return of the lancinating pains which had been tormenting him daily for eight years, rebellious to all measures. The results were excellent in three of the five tabetics treated by this means; one proved refractory and one succumbed to coronary sclerosis. Great improvement was observed in three of four cases of crippling from multiple sclerosis. The fourth reacted with a severe chill to a single injection and no benefit was observed. In these cases he used a 1.6 per cent. solution. The amount at each dose in all was 10 c.c., withdrawing an equal amount of the spinal fluid. He advocates this treatment as a lesser evil than morphin addiction or a Förster operation.

49: 269-302 (March 2) 1923

Theories as to Action of Rays. W. Caspari.—p. 269.
*Hypertrophy of the Prostate. Voelcker.—p. 271.
Mesenteric and Peritoneal Appendicitis. D. Kulenkampff.—p. 274. Cont'd.
Subacute Mastitis with Nodules. E. Glass.—p. 275.
*Tuberculin Tests. A. Neustadt and E. Stadelmann.—p. 277.
*Tests for Syphilis Applied to Tuberculous Children. E. Rüscher.—p. 278.
Eosinophilia in Vincent's Angina. F. Peter.—p. 279.
Surgical-Physical Treatment of Keloids. Kromayer.—p. 280.
Lecithin and Bile Acid in Treatment of Cholelithiasis. Apel.—p. 281.
Nonabsorbent Gauze for Dressings. K. Propping.—p. 284.
Local Treatment of Throat. G. Finder.—p. 285.

Hypertrophy of the Prostate.—In the course of this postgraduate lecture, Voelcker warned that the practitioner discovering retention of residual urine, from enlargement of the prostate, must not yield to the temptation to evacuate it all at once. He must wait a few days, giving a disinfectant to sterilize the urine. When the urine has thus acquired antiseptic properties, he draws off a small amount of the residual urine, not more than 200 or 300 c.c., and repeats this on alternate days. By this means the bladder will be completely emptied in a week or two. Then a retention catheter can be introduced, or the ordinary catheter several times during the twenty-four hours. The intense thirst declines, the blood pressure becomes reduced, the appetite returns and the irritable patient becomes tranquil although it may be several weeks or months before he feels well.

Tuberculin Tests.—Neustadt and Stadelmann reiterate their warning to practitioners as to the unreliability of and the possible injury from subcutaneous tuberculin tests.

Serologic Tests in Tuberculosis in Children.—Rüscher applied the Wassermann and flocculation tests for syphilis in two series of 120 and ninety tuberculous children apparently free from syphilis. A constant positive reaction was obtained only in 1 per cent. In four other cases the reaction varied from time to time and was evidently not specific.

Deutsche Zeitschrift für Chirurgie, Leipzig

177: 289-405 (March 5) 1923

Dislocation of Semilunar Bone; Operative Correction. Sonntag.—p. 289.
*Treatment of Carbuncle. W. Rieder.—p. 300.
Inlay Graft in Tuberculous Spondylitis. R. Sträter.—p. 313.
Experimental Research on Certain Local Disinfectants. Schnitzer and Rosenberg.—p. 325.
*Treatment of Goiter with Ultraviolet Rays. Langemak.—p. 343.
Etiology of Dupuytren's Contracture. A. Schubert.—p. 362.
Abortive Form of Fetal Chondrodystrophia. M. Budde.—p. 378.
*Spinal Cord Tumor. J. Alksnis.—p. 385.
Case of Prolapse of Intestine from Contusion. G. Fischer.—p. 389.
Nephrectomy with Aplasia of Second Kidney. E. Liek.—p. 393.

Treatment of Carbuncle.—Rieder makes the usual ample crucial incision and loosens up the edges a little, but leaves the depths unmolested, and tampons the whole infiltrated area with a strip of gauze impregnated with diphtheria antitoxin or horse serum. The process is arrested at once. The necrotic mass is generally spontaneously expelled in twenty-four hours, and granulations form in the depths on the second or third day. The skin sinks down on the young cells. With a furuncle, a single subcutaneous injection of 1 c.c. of horse serum in the center, without an incision, generally induces the spontaneous expulsion of the "core." He has treated with this combined method twenty-three carbuncles, including five on lip or cheek. The action of the horse serum in loosening up and promoting expulsion of the core is still a mystery. As no vessels in the depths are opened, the micro-organisms are not forced into the circulation.

Treatment of Goiter.—Langemak reviews the experience at Erfurt with ultraviolet ray treatment in 128 cases of goiter,

with or without local or internal iodin treatment or phosphorus treatment. Not a trace of the goiter could be found on reexamination in 74.3 per cent., and in the others only the closest scrutiny showed any traces of it. He takes a photograph of the patient before treatment is begun.

Spinal Cord Tumor.—The fibrosarcoma in the cervical spinal cord had been developing for four years in the young woman. It was about 4 cm. long by 1.3 cm. broad, and there was an artery in the threadlike pedicle. By the twenty-fifth day after its removal the patient was able to sew and dance.

Jahrbuch für Kinderheilkunde, Berlin

101: 1-126 (Feb.) 1923

*Vitamins and Endocrine Glands. E. Glanzmann.—p. 1.
*Heart Disturbances in Diphtheria. W. Blacher.—p. 13.
Blood Picture in Scarlet Fever. J. v. Ambrus.—p. 81.
Acetonuria in Children Poisoned by Lye. J. v. Gaizler.—p. 87.
Calcium Treatment in Pediatrics. J. v. Petheö.—p. 93.
Osteogenesis Imperfecta (Vrolik). T. Hoffa.—p. 101.
Two Rare Malformations of Bones. T. Hoffa.—p. 105.

Vitamins of Growth (A and B) and Endocrine Glands.—Glanzmann kept rats on a vitamin-free diet until the growth stopped. Daily addition of 1 gm. of dried thymus from calves started the growth again, but it stopped as soon as the thymus was discontinued. Other glands—except the sexual—have no effect in such doses. He believes that thymus is the central organ for metabolism of vitamins in young animals. After puberty, vitamins are stored in the sexual glands and provide thus the first endowment of the progeny.

Rôle of Nervous System in the Heart Disturbances in Diphtheria.—Blacher finds increased irritability and fatigue of the whole neuromuscular cardiac apparatus in diphtheria. In the first two or three weeks progressive vagotonia is evident. Fatigue of the pneumogastric nerve becomes more apparent after this stage, and may be accompanied by irritability of the accelerans. Nevertheless the irritability of the pneumogastric may appear even in this stage, especially in attacks following very small exogenous and endogenous stimuli. This lowering of the threshold of stimulation of the vagus and accelerans is the reason why cardiac remedies should be used with great care.

Medizinische Klinik, Berlin

19: 231-264 (Feb. 25) 1923

Diagnosis of Peptic Ulcer. H. Zoepffel.—p. 231.
*Gonorrhea in the Seminal Vesicles. H. Junker.—p. 233.
*Actual Menstruation Period. H. Mühsam.—p. 236.
Paratuberculous Inflammation. Aufrecht.—p. 236.
*Suture of Nerves for War Wounds. Dieterich.—p. 237.
Plastic Correction of Nose Deformities. E. Eitner.—p. 238.
Electric Treatment of Disease of Nasal Sinuses. Nürnberg.—p. 240.
Benzyl Benzoate in Treatment of Dysmenorrhea. Quack.—p. 241.
Apparatus for Measurement of Pelvis. J. Turmann.—p. 244.
*Oxygen Insufflation in Tuberculous Meningitis. A. Reiche.—p. 244.
Test of Liver Function by Methylene Blue. Kirch and Maslowski.—p. 245.
Death from Exertion in Heart Disease. A. Wilde.—p. 247.
Recent Literature on Modern Therapeutics. C. Bachem.—p. 247.
Gynecology for the Practitioner. E. Runge.—p. 248.
Deformities of the Trunk. S. Peltesohn.—p. 249.
Recent Works on Infectious Diseases. H. Zoepffel.—p. 251. Conc'n.
The Classical Greek Works on Ophthalmology. J. Hirschberg.—p. 261.

Recognition of Gonorrheal Disease of the Seminal Vesicles and Its Importance in the Course of Gonorrhea.—Junker takes the position that in the majority of cases, gonorrhea in men, if sufficiently treated, is not infectious in subsequent marriage. For gonorrhea in women, his prognosis is less favorable. He calls attention to the fact that of seventy-six cases examined, 22 per cent. of the patients showed the gonococcus in the seminal vesicles. From his experience, he draws the conclusion that if gonorrhea in men, after supposed cure, proves infectious it is because sufficient attention has not been given to the seminal vesicles or the posterior portion of the urethra and its adnexa, and that many of those who have been considered incurable before may be cured, with due regard thereto.

The Actual Menstruation Period.—Mühsam has made observations on the basis of which he believes that most healthy and genitally sound women and girls menstruate on about the same days in the month. A week and a half or two weeks from this period there are a few days on which a smaller number of women menstruate. In order to obtain the necessary statistics to settle this matter, he asks that physicians in Germany and other countries will secure data which answer the following questions: (1) How many women begin menstruation on the first, second, third, etc., day of each month; (2) how many of these women are constitutionally and genitally sound; (3) how many menstruate irregularly; (4) how many are genitally diseased; (5) how many are constitutionally diseased? The statistics should be sent to him at Berlin, Maassenstr. 11.

Ultimate Outcome of Suture of Nerves.—Dieterich says that of 7,000 wounded soldiers, forty-six required suture of a severed nerve. Of these, seven were fully cured by the suture, and three were improved. The injuries cured were in the radial nerve, and those improved in the external popliteal and the median nerves.

Oxygen Insufflation in Tuberculous Meningitis.—Reiche has used oxygen insufflation in the treatment of tuberculous meningitis in infants and young children, always with negative results.

Zeitschrift für klinische Medizin, Berlin

96: 279-526 (Feb. 28) 1923

*Hydration of Tissues. Schade and Menschel.—p. 279.
*Liver Function in Epidemic Encephalitis. Meyer-Bisch and F. Stern.—p. 328.
Local Reaction of Vessels. Kauffmann and Kalk.—p. 349.
Action of Protein Therapy on the Blood. Weicksel.—p. 372.
Agglutination and Electric Charge of Red Corpuscles. J. Vorschütz.—p. 383.
*Differential Cell Count in Puerperium. E. M. Fuss.—p. 391.
Constitution and Pneumonia. J. Tillgren.—p. 407.
Roentgen Rays in Pulmonary Tuberculosis. Wels.—p. 414.
*Blood Pressure in Affections of Kidneys. A. Arrak.—p. 453.
*Diabetes Insipidus. E. Meyer and R. Meyer-Bisch.—p. 469.
Movements of Healthy and Diseased Stomachs. Nick.—p. 495.
Acute Micromyeloblast Leukemia. Kohn.—p. 513.

Law of Hydration of Tissues, and Its Significance for Water Exchange in Tissues, Lymph Formation and Genesis of Edema.—Schade and Menschel found an antagonism between the cells and intercellular substance with the use of changes of hydrogen ion concentration and hypertonic solutions. The edemas in alkaline treatment, stasis and inflammations are physico-chemically different.

Disturbances of Liver Function in Epidemic Encephalitis.—Meyer-Bisch and Stern found marked urobilinuria in eleven cases of chronic progressive epidemic encephalitis. Ingestion of 100 gm. of levulose was followed by levulosuria in five out of six patients examined. The urobilinuria increased after it in all of them. They do not believe that the probable lesion of the liver was caused by the central nervous process.

Complete Differential Cell Count (Hemogram) in the Puerperium.—Fuss examined the blood of twenty-one women after confinement. He found during labor a shifting of neutrophils to the left, sometimes with a very large (49.5 per cent.) number of forms with "rod shaped" nuclei. Two days after delivery, the blood has a distinct tendency to return to normal. If this does not occur, or if the blood "shifts" again to the left, it indicates a disturbance. The severity of the disturbance is proportional to the new disappearance of eosinophils, lowering of lymphocytes and especially to the increase of "rod shaped" and young forms of neutrophils, up to myelocytes.

Changes of Blood Pressure in Affections of Kidneys, and Their Causes.—Arrak found that the blood pressure in affections of kidneys varied in the same way as in healthy persons. Food had no influence. The cause of the periodicity is unknown.

Diabetes Insipidus.—Meyer and Meyer-Bisch publish two cases of diabetes insipidus, one of which occurred after an injury of the head. They also discuss the newer cases in the literature. Though they fail to find an essential difference between the hypochloremic and hyperchloremic types, they admit the more complicated features in the second. It has not only a renal disturbance of concentration of chlorids but also a similar disturbance between the tissues and the blood. Extracts of the pituitary gland had a predominant action on the tissues in their experiments.

Zentralblatt für Chirurgie, Leipzig

50: 425-456 (March 17) 1923

*Suprarenalectomy in Epilepsy. Küttner and Wollenberg.—p. 430.
Treatment of Esophageal Strictures. Lotheissen.—p. 431.
*Entrance of Air into Vascular System. Bingel.—p. 433.
Effect of Camphorated Phenol on Articular Cartilage. G. Axhausen.—p. 434.
The Surgical Anatomy of Splenic Vessels. Volkmann.—p. 436.
*Colostomy in Ileocecal Invagination. Gottesleben.—p. 438.
Stab Wounds of Liver and Duodenum and Complications. Roth.—p. 440.
*Blocking the Phrenic Nerve in Injury of Diaphragm. Báron.—p. 442.
Lymph Drainage in Elephantiasic Edema. Kondoleon.—p. 443.

Negative Effect of Extensive Suprarenal Operations in Epilepsy.—Küttner and Wollenberg report their results in four cases of epilepsy in which they removed one suprarenal completely and half of the other. The effect in all cases was entirely negative; in one case exacerbation followed the operation.

Entrance of Air Into Vascular System: Its Removal from Right Ventricle by Heart Puncture.—In Bingel's case, a man, aged 47, had had air injected, for roentgen examination, into the space left after drawing off 1,250 c.c. of encapsulated ascites, a subphrenic abscess having formed in consequence of a recurring malignant tumor in the pyloric region. Slight emphysema of the skin appeared. About 100 c.c. of air had been injected, when the patient sank back unconscious. Auscultation of the heart revealed water-wheel sounds. There was evidently air embolism in the brain and, therefore, with a 1 c.c. record syringe, the right ventricle of the heart was punctured close to the left edge of the sternum, and 3 c.c. of air was aspirated from the heart. The patient had already improved somewhat under camphor, and, following the heart puncture, he was soon restored to his previous condition. The mill-wheel sound in the heart disappeared; the pulse was full and strong, and he was again fully conscious. The patient died two weeks later. Under many different circumstances and in connection with operations on or near veins, artificial pneumothorax, pneumoperitoneum, etc., air may possibly penetrate a vein. In such cases, Bingel advises immediate auscultation of the heart. If a water-wheel sound is noted, an attempt should be made to remove by puncture the air from the right ventricle. It is possible that in this manner some patients might be saved.

Colostomy with Witzel Fistula for Ileocecal Invagination.—Gottesleben illustrates a procedure that he recommends to prevent postoperative complications after successful disinvagination, and also in palliative operations in which the condition does not allow resection. After reduction of the invagination, a Witzel fistula is made in the cecum, with a long tube introduced through a slit in the muscular band. The tube is passed through the valve into the ileum, and the abdominal incision is sutured around the tube. The advantages claimed for this method are: (1) the speed with which it can be carried out; (2) prevention of recurrence, as the tube guides the passage of feces; (3) the opportunity for influencing sluggish intestinal activity through the fistula, and (4) operative closure is unnecessary, since the slanting fistula closes spontaneously in a short time.

Blocking the Phrenic Nerve in Injury of the Diaphragm.—Báron reports the case of a young man with a nonhemorrhagic bayonet wound in the ninth left intercostal space. Symptoms of light shock were present. The patient had paroxysms of coughing and complained of severe radiating pain in the left shoulder. The local pain was insignificant. As there was no evidence of injury to the abdominal organs, a bandage was applied and the left phrenic nerve was blocked by 15 c.c. of a 32 per cent. procain solution to immobilize the diaphragm. In a few minutes the patient became calmer and the pain and the cough disappeared. Six hours later no movements of the diaphragm, as far as could be ascertained by percussion, were discernible. The pain in the shoulder did not return and in a few days the patient had recovered. It seems assured that the elimination of sensation and movement in half of the diaphragm, which was accomplished a few minutes after the injury, exerted a favorable subjective and objective influence (hemostasis, localization of eventual infection).

50: 457-504 (March 24) 1923

*Paravertebral Anesthesia in Diagnosis. A. Läwen.—p. 461.
Operation for Bile Fistula. L. v. Stubenrauch.—p. 465.
Repeated Resection of Stomach for Peptic Jejunal Ulcer. W. Denk.—p. 466.
*Exclusion of the Pylorus. K. Lutz.—p. 469.
*Dangers of Encephalography with Brain Tumor. Denk.—p. 471.
*A Method of Treating Exophthalmic Goiter. P. Pajzs.—p. 472.
Habitual Displacement of Ulnar Nerve. G. Schmidt.—p. 474.
*Operative Treatment for Tuberculous Shoulder Joint. A. Báron.—p. 477.

Nerve Blocking in Differential Diagnosis.—Läwen now has a record of 150 cases in which he injected procain to block the spinal nerve innervating a given organ. The response is instructive not only for differential diagnosis in affections of the gallbladder, stomach, kidney and appendix, but the relief from pain and the prevention of postoperative pain are further advantages of this paravertebral anesthetization.

Exclusion of the Pylorus.—Lutz describes the method of pyloric exclusion that he has used with success in 24 cases of duodenal ulcer distant from the pylorus. After gastroenterostomy, a longitudinal incision about 2.5 cm. long is made in the stomach wall just above the pylorus. This small incision is kept open with four tenacula and the mucous membrane is gently mopped clean. Then the mucosa of the pylorus is painted for from six to ten seconds (with a turning motion) with a pledget of cotton, attached to a Blephaire sound, dipped in a concentrated solution of hydrochloric acid or sulphuric acid. The opening is then closed by Lembert sutures. In four weeks the stenosis from the caustic is complete. In 17 of the 24 cases, an examination was made after two to eight months. In all 17 cases the patients were free from discomfort. In 14 cases the closure of the pylorus (fluoroscopic examination) was complete; in the other 3 cases a very small quantity of chyme was passing from the stomach into the duodenum. No complications of any kind have occurred as yet.

Dangers of Lumbar Encephalography in the Presence of Cerebral Tumors.—Denk reports that, in a man, aged 26, the right lateral ventricle was punctured for the purpose of ventriculography. As no fluid could be aspirated, no oxygen was injected. Two days later, the left lateral ventricle was punctured, with the same negative result. Compression or dislocation of the ventricles by a tumor was assumed. Thirteen days later, in order to determine on which side the tumor lay, a very cautious attempt at lumbar puncture and insufflation of oxygen was made. The fluid was under high pressure; 60 c.c. of fluid was removed, 4 c.c. at a time, and after the removal of each 4 c.c. of fluid, a like quantity of oxygen was injected. No more fluid was removed because the patient showed signs of weakness. One-half hour after the lumbar puncture, the patient became apathetic, and the stupor became deeper with each succeeding hour. The next morning, general convulsions occurred, and soon after death ensued. A glioma was found in the left temporal lobe, with displacement of the lenticular nucleus and compression of the lateral ventricle.

A Method of Treating Exophthalmic Goiter.—Pajzs gives a preliminary report on a method he has employed in about fifteen cases. He injects alcohol into the diffuse parenchymatous goiter tissue. The injections are repeated until the pathologic secretion of the goiter is sufficiently reduced, which fact is measured by the general condition of the patient. At first, from 1 to 2 c.c. of 80 per cent. alcohol is injected—if possible, deep within the parenchyma, on one side. The first injections cause a marked general reaction. The tachycardia is increased temporarily; frequently diarrhea occurs, and the exophthalmos appears to be greater, doubtless due to the resorption of toxins liberated by the coagulating effect of the alcohol in the goiter tissue. The injections are then cautiously increased. At first alternating, then daily one or two injections on both sides, later two or three injections, of from 0.5 to 1 c.c. of alcohol are given until the desired result is obtained. If the general manifestations are increased or local inflammations (disappearing usually in one or two days) should appear, the injections are stopped and fomentations are employed. The injections are made at different points each time. In a week, a con-

siderable diminution of the goiter will be noted. In from three to four weeks after the injections are begun, the general condition of the patient starts to improve. In some cases, from 70 to 80 injections are required to effect a cure. As little as possible of the goiter tissue should be destroyed; otherwise, thyroprival symptoms may be produced.

Operative Method in Tuberculosis of Shoulder Joint.—Báron in Budapest describes in detail his operation which consists essentially in the resection of the tuberculous head of the humerus and implantation of the shaft—at a right

Excision of tuberculous shoulder joint.

angle to the side of the trunk—in a prepared bed in the lateral border of the scapula. Other illustrations show the almost normal functioning of the arm in time.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 1298-1404 (March 31) 1923

*Polyserositis. J. L. A. Peutz.—p. 1298.
*Treatment of Certain Psychoses. H. Breukink.—p. 1321.
*Laryngeal Tuberculosis. H. Verploegh.—p. 1329.
Tuberculosis Death Rate in the Netherlands. Rietema.—p. 1351.

Polyserositis.—Peutz describes six cases in detail and discusses the etiology and symptomatology. There is no question of a rational treatment beyond that for tuberculosis in general. The special liability to infection of the serous membranes justifies a "hands off" policy. In some of his tuberculous cases the cerebral meninges and the synovial membranes of the extremities shared in the polyserositis. In one case, bilateral pleurisy and peritonitis ran their course with death in nine months but no tubercle bacilli had ever been discovered in the sputum or pleural effusion. One woman had pleurisy at 23, then pleurisy on the other side and peritonitis at 28, then a free interval of several years and pleurisy with synovitis; then after an interval of three years, synovitis and peritonitis. No tubercle bacilli have been found in the sputum, but an exploratory operation confirmed the tuberculous peritonitis. This patient now has pleurisy again. The others all died. The anamnesis in these cases is of prime importance. The temperature may suggest typhoid, or be subnormal, or with long periods of normal temperature. Each serous membrane may spontaneously return to clinical normal condition, but we must not forget that the polyserositis is a secondary affection. The prognosis is graver the shorter the intervals.

"Catharsis-Hypnosis" Form of Psychanalysis in Treatment of Certain Psychoses.—Breukink explains his method as based on both Breuer's and Freud's, but he applies suggestion to the patient in somnambulism, regarding hypnosis as an important aid in the symptomatology, the differential diagnosis and the prognosis of psychoses. When somnambulism can be induced by simple fixation and suggestion, in a case of psychosis, he has found that the psychosis is readily curable.

Laryngeal Tuberculosis.—Verploegh states that with an acute, progressive focus, complete rest is the only treatment; radiotherapy must wait until the acute phase is past. With a chronic focus, with much toxin, any irritation of the focus sends a stream of toxin throughout the system; if the resisting powers are good, this is borne without harm unless a primary focus is aggravated by it. The active laryngeal focus yields to strong vaccine or roentgen treatment, but the primary focus in the lung may become aggravated. The inactive laryngeal focus behaves differently. Even the strongest irradiation brings little or no improvement. We must first activate the focus; vaccines and diathermy are useful for this. The roentgen rays must be applied when the reaction is at its height.

1: 1406-1500 (April 7) 1923

*Active Immunization Against Diphtheria. Kramer.—p. 1406.
*Hemianopsia in Case of Epilepsy. C. T. van Valkenburg.—p. 1412.
*Tar Cancer. H. T. Deelman.—p. 1416.
Mammary Cancer and Postoperative Irradiation. J. de Smit.—p. 1425.
Sixteenth Century Anatomic Fugitive Sheets. J. G. de Lint.—p. 1429.

Active Immunization Against Diphtheria.—Kramer comments on the results of immunization of nurses in the diphtheria ward at Rotterdam. Of the total 114 tested, forty-seven responded positively to the Schick test and were systematically immunized. Of the ninety employed in the diphtheria ward, 42 per cent. were thus immunized and 58 per cent. left unimmunized on account of a negative Schick test. Two in this latter group developed diphtheria, requiring antitoxin treatment, but in both a preceding influenza had lowered the resisting powers. In a third case, however, a healthy nurse developed typical diphtheria with paralysis of the palate, notwithstanding her negative Schick test. He queries whether the skin may not react (in adults) to the Schick test even when the antitoxin content of the blood is below the safe limit. Twelve of the nurses became carriers, six with positive and six with negative Schick responses.

Focal Symptoms in Epilepsy.—The young epileptic had been under observation for ten years when suddenly hemianopia developed and persisted. The seizures were not modified by it.

Tar Cancers.—Deelman's research on experimental cancers, confirms that they often develop with multiple centers.

Hygiea, Stockholm

85: 113-240 (Feb. 28-March 31) 1923

*Widal's Test of Liver Functioning. A. Andreen-Svedberg.—p. 115.
Colloidal Metals in Therapeutics. S. Zandrén.—p. 121. Concl'n p. 147.
*Intraspinal Introduction of Fluids. I. Holmgren.—p. 130. Idem. W. Gennerich.—p. 226.
*Mechanics of the Formation of Diphtheria Toxin. K. G. Dernby.—p. 165.
*Neurologic Surgery. A. Troell.—p. 198.

Widal's Test of Liver Function.—Andreen-Svedberg found the hemoclastic crisis test accurate in sixteen cases of certain liver disease and negative in four dubious cases. Only a positive reaction seems to be instructive.

Holmgren's Technic for Single Intraspinal Introduction of Medicated Fluids.—Holmgren uses a needle with two openings close together. When it has been inserted, a manometer is connected with the side opening, and the pressure is measured. A glass cylinder is then connected with the main opening; the side valve is closed, and the main valve opened. The cylinder is lowered so that the cerebrospinal fluid can flow into it in the usual way. When the desired quantity has been drained off, the arsphenamin solution is introduced through the side opening by means of a syringe. Then the side valve is closed, the cylinder raised, the main valve opened and the cerebrospinal fluid flows back into the spinal cavity. He says that the result is the same as with Gennerich's double puncture, with less risk of leakage, and the advantage that this method requires only a single puncture.

The Mechanism of the Formation of Diphtheria Toxin.—Dernby, referring to the necessity of obtaining strong toxins in order to produce effective antitoxins, outlines a new theory, based on a number of experiments, on the mechanism of the formation of diphtheria toxin in cultures. The diphtheria toxin is formed mainly outside the cells. The bacilli grow, die and autolyze. In this process, proteolytic enzymes of a nature specific to these bacilli are set free. These enzymes act on the albumoses and peptones present in the bouillon. Certain of the first intermediary products are the toxic substances. The toxicity disappears if the proteolytic process is permitted to proceed further.

Gasserectomy.—Troell reports resection of the gasserian ganglion for trigeminal neuralgia in two cases, with successful outcome. The only by-effect was transient paralysis of the ocular muscles in one case. The patients were a woman of 38 and man of 49. Five other operations are reported.